



Asia-Pacific
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Union

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No.254 April-June 2013



RTR, The Present and The Future



SFN Interferences: AVG Experiences



OLED Technology: Clear Advantages

**TECHNICAL
REVIEW**

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Asia-Pacific Broadcasting Union

TECHNICAL REVIEW

From the Editor's Desk



This 254th issue offers a variety of articles and reports on events of interest to members. Three technical articles in this edition have been contributed by our members: AVG-Vietnam, RTR-Russia and SONY-Hong Kong.

The AVG article shares practical experiences regarding SFN interference on the DVB-T2 standard. SFN, whilst providing an effective saving of frequency resources, may cause interference. The article suggests solutions for overcoming this.

The RTR article defines the present and the future of the broadcaster and its radio and TV stations in different provinces of Russia. It describes the services of the organisation and its transmission coverage. Being the only public broadcaster, RTR is the biggest in the country, with developed production and technical facilities. The SONY article describes OLED technology, its advantages for professional monitors and compares it with other types of display technology.

A short report on the ABU Technical Bureau meeting lists the key decisions taken. A report on a workshop, organised in Sri Lanka, highlights new satellite technologies and applications. A second report is on a technology tour to different broadcasters and industry players in Hong Kong whilst the third report shares experiences of this year's BroadcastAsia.

News from the ABU Region, provides an update on digital broadcasting, equipment trends, personalities and posts, make up the rest of the publication.



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

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SFN Interference (DVB-T2 Standard) AVG's Experiences

by Dr. Ngo Thai Tri, Mr Nguyen Chien Thang, Mr Nguyen Manh Duc
Audio Visual Global JSC (AVG)-Vietnam

1. Introduction

A single frequency network (SFN) is a special broadcasting network where several transmitters radiate the same signal on the same frequency, at the same time. SFN with the DVB-T2 standard provides an effective solution to save frequency resources. On the other hand, because of using the same frequency, SFN interference may occur. In this paper we will introduce our own approach and practical experiences.

From a receiving point of view, SFN interference can be seen as a special case of multipath. SFN interference can be controlled by time delay, transmitter power, antenna tilt or pattern.

2. DVBT-2 SFN Parameter

In theory, if the difference in delay times of incoming signals is greater than the guard interval (GI) and the difference in power of main signal and echoes is below the threshold, then SFN interference will occur. GI and the threshold of power difference depend on modulation scheme, code rate, and some other parameters.

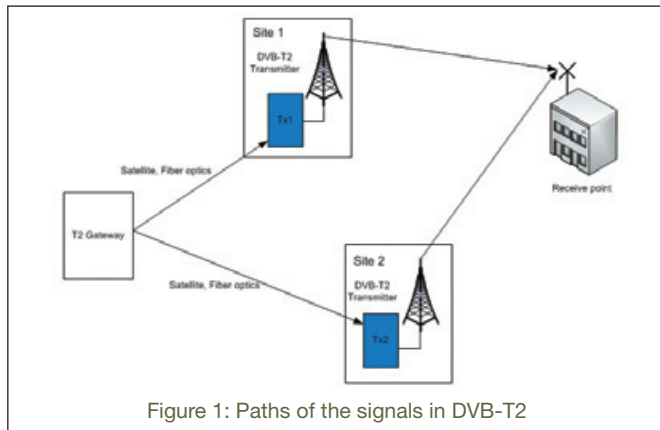


Figure 1: Paths of the signals in DVB-T2

DVB-T2 system parameters depend on the broadcaster's purpose. According to the bit rate that they want to transmit, broadcasters choose parameters like FFT size, GI, code rate, etc. For example, if we want to broadcast 30 Mbits/s, we may choose FFT size 32k, GI 19/256 (266μs), code rate 3/4 and some other parameters. In this case, the C/N threshold for co-channel protection is about 18 dB [1].

Table 1: Guard interval in DVB-T2

		GI-Fraction						
		1/128	1/32	1/16	19/256	1/8	19/128	1/4
FFT	T _u [ms]	GI [μs]						
32k	3.584	28	112	224	266	448	532	NA
16k	1.792	14	56	112	133	224	266	448
8k	0.896	7	28	56	66,5	112	133	224
4k	0.448	NA	14	28	NA	56	NA	112
2k	0.224	NA	7	14	NA	28	NA	56
1k	0.112	NA	NA	7	NA	14	NA	28

Source: EBU TECH 3348 version 2.0 Geneva May 2012

In theory, with GI equal to 266μs, we need to locate two transmitter sites at a maximum distance of about 79.8km. However, in SFN, there are always transmitters where the distance between them bigger than the maximum allowed, so there is always risk of SFN interference. However, if the distance between two transmitter sites exceeds the maximum allowed distance, but the difference in power of incoming signals satisfies the protection ratio, there will be no interference.

3. Some Situations Where SFN Interference Occur

3.1 Scenario 1: SFN Consists of Two Sites

Let us consider a receiving point, which is located in the space between two sites, the difference in distance to two sites can be calculated as equation below:

$$\Delta S = |\sqrt{x^2 + y^2} - \sqrt{(1-x)^2 + y^2}|(1)$$

For the points which are located in other positions, the difference in distance to two sites will be:

$$\Delta S = |\sqrt{x^2 + y^2} - \sqrt{(1+x)^2 + y^2}|(2)$$

Where ΔS is the difference in distance from the receiving points to two sites

x is the distance from projection of the receiving point to the axis link two sites to site 1

y is the distance from projection of the receiving point to the perpendicular line of the axis link two sites to site 1

In consideration of two transmitter sites in SFN which have the distance between them is D , the maximum allowed distance (correspond GI) is $D_{\max}$, so ΔS can be illustrated in the figure below:

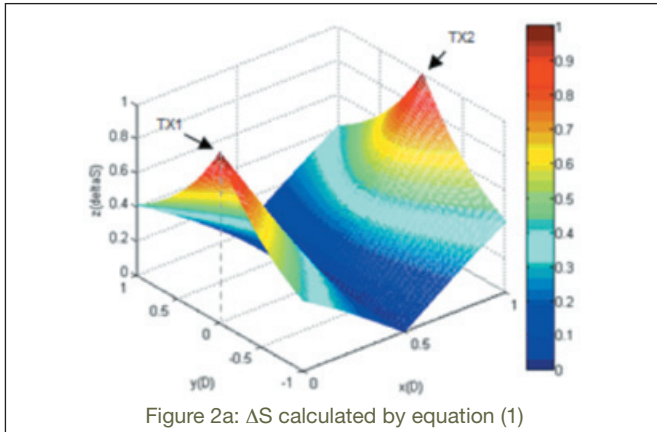


Figure 2a: ΔS calculated by equation (1)

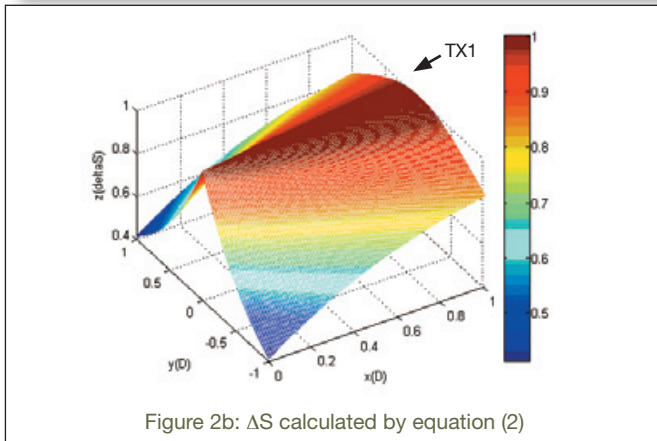


Figure 2b: ΔS calculated by equation (2)

Colour index is a function of ΔS and D :

- ΔS is always less than or equal to D , the second case will occur when the receiving point is out of space between two sites and lays on the line that link two sites together.
- If D is less than $D_{\max}$, interference will not occur.
- If D is greater than $D_{\max}$, interference may occur, the hotter colour corresponds to higher risk of interference.

3.2 Scenario 2: SFN Consists of Three Sites

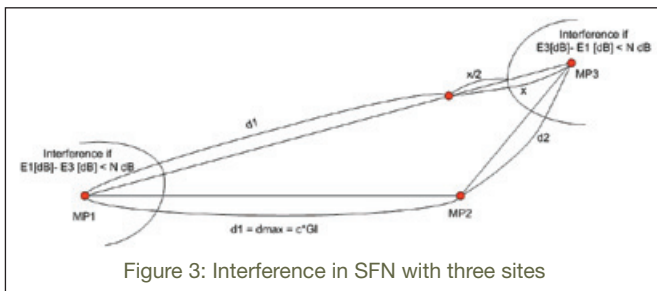


Figure 3: Interference in SFN with three sites

Normally, the distance between the first two transmitter sites is less than $D_{\max}$, however when we deploy the third site, the distance from this site to site 1 may exceeds the $D_{\max}$. Depending on the power of transmitter and the height of transmitting antenna of each site, interference may occur around site 1 and site 3.

In this case, the distance from site 2 to site 1 or to site 3 normally is less than $D_{\max}$, but the distance between site 1 and site 3 may be greater than $D_{\max}$, so interference may occur at the areas around site 1 and site 3 if the signal powers do not satisfy the condition below:

$$\begin{aligned} E1(\text{dB}) - E3(\text{dB}) &\geq N \text{ dB} \\ E3(\text{dB}) - E1(\text{dB}) &\geq N \text{ dB} \end{aligned}$$

Where

$E1$ is the field strength of the incoming signal from transmitter site 1 at the receiving point

$E3$ is the field strength of the incoming signal from transmitter site 3 at the receiving point

N is the protection ratio

However, SFN interference can be controlled by using a high power transmitter for site 2 and low power transmitters for site 1 and site 3, in order to satisfy condition (3). In addition, we can adjust the direction of receiving antenna to site 2, if needed. The larger the number of transmitters in the network, the more complicated interference is.

4. Some AVG's Experiences in Deploying DVB-T2 SFN

In practice, while deploying SFN DVB-T2, AVG tested two different modes:

- **Mode 1:** FFT size 32k, modulation 64 QAM, code rate 3/4, GI 19/256, PP4.
- **Mode 2:** FFT size 32k, modulation 256 QAM, Code rate 3/5, GI1/8, PP2.

Mode 1 is suitable for medium SFN and the maximum allowed distance ($D_{\max}$) between a site to the adjacent one is about 79.8km, while mode 2 is suitable for large SFN and the maximum allowed distance ($D_{\max}$) between two sites is about 134.4km. The SFN interference simulation results corresponding to two modes are showed in figure 4a and 4b

In both scenarios AVG deployed some of transmitter sites, which had greater distance than $D_{\max}$. The simulation results show some interfered areas occurring around transmitter

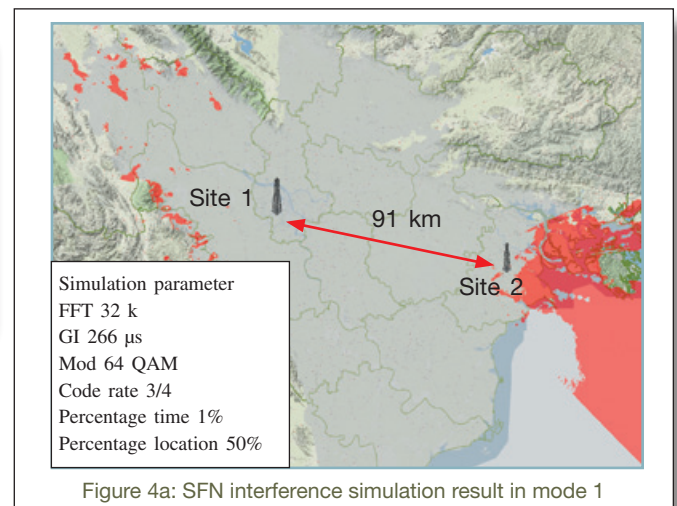


Figure 4a: SFN interference simulation result in mode 1

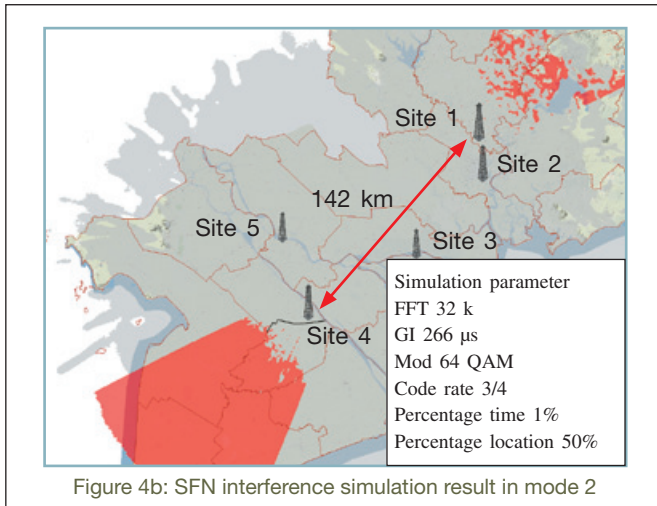


Figure 4b: SFN interference simulation result in mode 2

sites. The interfered areas are difference sizes, since the transmitting powers and the height of the transmitting antennas of two sites are different. Based on simulation results, AVG measured on field at the area where interferences might occur. The measurement results are shown in section 4.1 and 4.2 below.

4.1 SFN Interference Measurement with Mode 1 – The Medium SFN

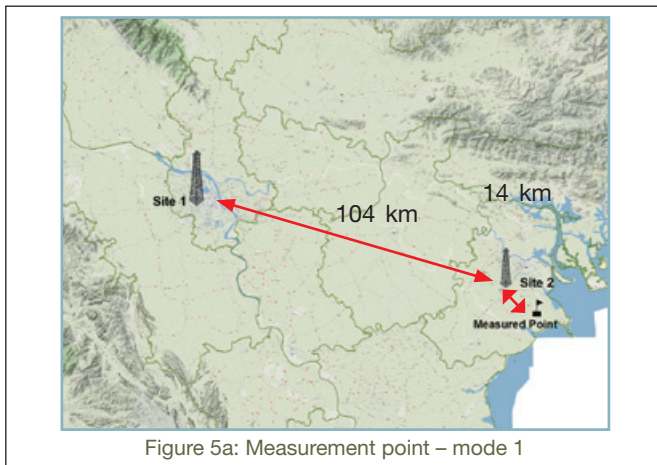


Figure 5a: Measurement point – mode 1

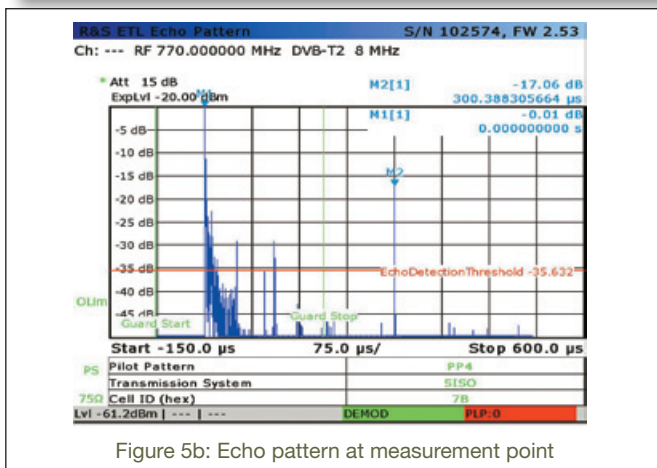


Figure 5b: Echo pattern at measurement point

In mode 1, the distance from the measurement point to site 1 is about 104km and the distance to site 2 is about 14km. The difference in distances to two sites is

90km, bigger than $D_{\max}$. At this point, when we changed the receiving antenna direction, interference occurred in some cases.

To overcome this problem, the transmitter delay of site 2 was adjusted by 40 μ s. The difference in delay times between two signals was reduced to 260 μ s and fell inside the GI, so the receiver could demodulate signal normally.

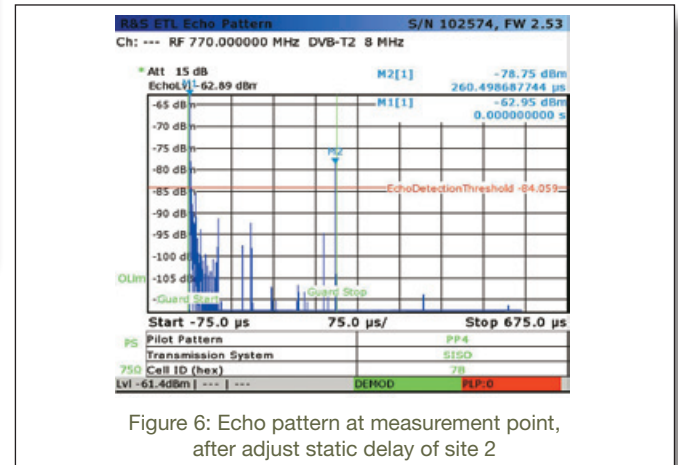


Figure 6: Echo pattern at measurement point, after adjust static delay of site 2

4.2 SFN interference Measurement with Mode 2 – The Large SFN

In mode 2, the distance from the measurement point to site 1 is about 184km and the distance to site 2 is about 43km, as illustrated in the figure below.

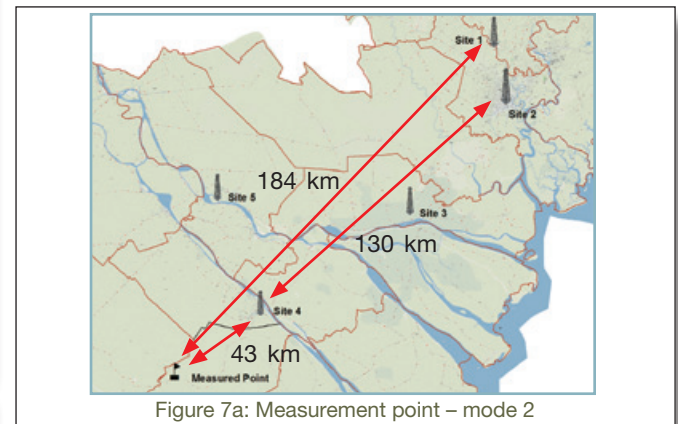


Figure 7a: Measurement point – mode 2

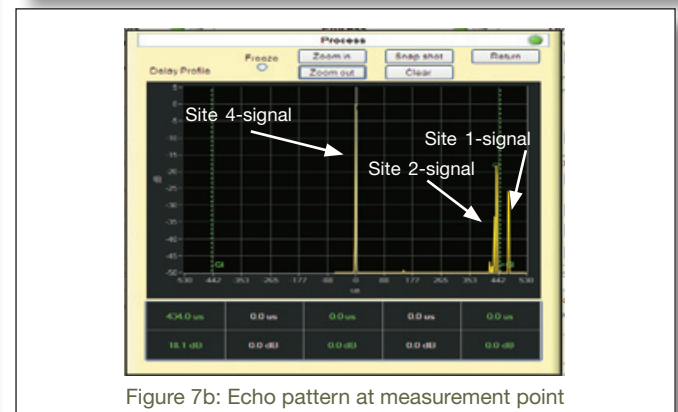


Figure 7b: Echo pattern at measurement point

The echo pattern shows that there were three signals from site 1, site 2 and site 4 to the measurement point. The echo of site 2 delayed 434 μ s relating to main signal

from site 4. This echo fell inside the GI. On the other hand, the echo of site 1 delayed $470\mu\text{s}$ relating to main signal. This echo fell outside the GI but the difference in power between these two signals was about 27dB. This value satisfied the protection ratio, so the receiver could demodulate signal normally.

5. Conclusion

In SFN there are always transmitters which have distance between them bigger than the allowed maximum, (D_{max}), so there is therefore always risk of SFN interference. However the simulation results and AVG's deployment in DVB-T2 SFN show that the risk of SFN interference can always be predicted and controlled by adjusting transmitter power, tilt and direction of the receiving and/or transmitting antenna.

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- [1] The European Broadcasting Union, "Frequency and Network Planning Aspects of DVB-T2", EBU – TECH 3348 version 2.0 Geneva, May. 2012.
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- Establishment of TV studio for IGNC, Edusat setup for Delhi Technical University and Sangeet Natak Academy.

- Manpower outsourcing for specialised service to Doordarshan and AIR News Unit Delhi, RNUs and EMMC.
- Establishment of Main Press Centre of Commonwealth Games 2010 for PIB.
- Designed and created broadcast compounds & facilities for Prasar Bharati, the host Broad-caster of Commonwealth Games 2010.
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RTR

The Present and The Future

by Gennady Kachalov

Russian State Television and Broadcasting Company (RTR)

The Background of RTR

The Russian State TV and Radio Broadcasting Company (RTR-the company's international logo, while VGTRK is its Russian abbreviation) was founded on July 14, 1990. "Radio Russia" was launched some months later. On May 13, 1991 "RTR" TV channel started broadcasting. In 2001 the channel was renamed to TV Channel "Russia".

In early 1993, the Russian State TV and Radio Broadcasting Company got the status of the state TV and radio company. The same year RTR became an Active Member of the European Broadcasting Union (EBU) and in 2003 – an Associate Member of the Asia-Pacific Broadcasting Union (ABU).

In 1998 the state TV and radio companies in all the Russian Federation (RF) were incorporated into RTR. Now RTR has 80 regional affiliates and is the greatest corporation of electronic mass media in Russia. Since 2000 Mr. Oleg Dobrodeev has held the position of RTR Director General.

Today the Russian State TV and Radio Broadcasting Company is taking the lead in the national broadcasting market, being one of the greatest providers of TV and radio programmes. Four RTR TV channels are among the eight TV channels of the first publicly available free multiplex for digital terrestrial broadcasting in the territory of Russia.

RTR TV Channels

Now the RTR Moscow broadcast centre transmits simultaneously 15 TV channels to 28 various directions. 10 of those RTR TV channels have been launched during the last four years.

RTR Publicly Available Free TV Channels



These channels are broadcast through terrestrial transmitter network and also included by operators on a gratuitous basis into the packages of satellite, cable and IP networks.

"**Russia 1**" was established in **1991**. It produces the news programme "Vesti" and is one of the two leading national TV channels that broadcast all over the country. Its audience represents 98.9% of the population of Russia and over 50 million TV viewers in the CIS countries and the Baltics. For the last few years TV Channel "Russia" has become an active member of film production market with award winning films shown at international film festivals. Closed subtitling is provided 7 hours a day.

"**Russia K**" – (TV channel "Kultura") was launched in **1997**. Its broadcasts cover 75% of the RF population. It has no commercials. The main task of the channel is an educational one: history, music, theatre, fine arts, literature, and lectures of leading national scientists and documentaries on the Russian history. Closed subtitling is provided 7 hours a day.

"**Russia 2**" was launched in **2003** as the "Sport" Channel. It covers 50% of the RF population. The main task of "Russia 2" is popularisation of sports in Russia. It is the channel for "young adults" that broadcasts news, sports and educational programmes.

"**Russia 24**" is a 24-hour real-time updated TV channel, launched in **2006**. It covers world news and news of the Russian regions as well as culture, economic and sports news, top meetings and hot topics of the day. Its audience currently represents 20% of the RF population.

"**Karusel**" ("Carousel") is the children's channel established in **2010** together by RTR and TV Company "Channel One" especially for the audience from 4 to 17 years old. It broadcasts the best cartoons and series, sports games, intellectual quizzes, training programmes and documentary films. Nowadays it covers 10% of the RF population.

Each of these channels will be accessible to over 99% of the population of the country by 2015 via the first multiplex of digital terrestrial broadcasting.

RTR Thematic TV Channels

These channels broadcast via satellite, cable and IP systems.



"**RTR-Planeta**" is a 24-hour satellite TV channel established in 2002 especially for Russian speakers living in the countries of Europe, Middle East, North Africa and the USA. It is an international version of "Russia 1" and "Russia K" TV channels:

"**Euronews**" was launched in **2009** as the Russian version of the 24-hour European news TV channel.

"**My Planet**" was launched in **2009** as a 24-hour educational channel about travel, countries, history and people.

"**Sport 1**" (**2010**) is a new sports HDTV channel in Russia. The programme includes the most spectacular sports events:

world and European football championships, biathlon, tennis, hockey, basket-ball, volley-ball, professional box, Premiere League and the English FA Cup, all stages of Formula-1, etc.

“Sport 2” is another sports TV channel launched in **2010**. The programme schedule includes not only sports broadcasts of “Russia-2” TV channel but also exclusive reports and its own productions. The channel has no commercials.

“Nauka 2.0” (“Science 2.0”) is a channel established in **2011** and devoted to the composition of our world, the work of technologies and the creation of things that surround us.

“Strana” (“Country”) is a TV channel established in **2011** aimed at production and transmission of films and programmes about Russia for the Russian audience, documentaries, feature short films, the all-Russian hit-parade of musical clips, informative and educational programmes.

“Sarafan” (“Sundress”) (2011) is a channel of good moods, hearty humour and bright colours. The schedule includes the best Russian humour from classics of the genre, top music performed live by favourite artists, the most popular Russian situation comedies, unique bright design and inter-programme formats.

“Fight Club” (2011) is a TV channel devoted to endurance sports of all kinds: professional and amateur box, mixed martial arts, judo, karate, wrestling, unarmed combat and all relative sports.

“Moscow-24” (2011) is a 24-hour news and information TV Channel. It was created by RTR, initiated by the Mayor of the city of Moscow. The Channel aims at dynamic coverage of the situation in Moscow (events, news, traffic, weather, etc.)

RTR Radio Stations



The RTR distribution network includes 5 radio programmes.

“Radio Russia” is the main state radio station in the country producing news, social and political, music, literature and dramatic, scientific and educational programmes, as well as programmes for children. It broadcasts 24 hours a day and covers 98% of the RF population.

“Vesti FM” 24 hours a day transmits news, commentaries of experts, stock market data, hot live news and special reports. Its coverage is 18% of the RF population.

“Mayak” (“Beacon”) is the oldest and recognizable state news and musical station that broadcasts 24 hours a day and covers 93% of the RF population.

“Radio Yunost” is a youth radio station that broadcasts in many regions and in satellite packages 24 hours a day and covers 20% of the population of Russia.

“Radio Kultura”. The programme content fully corresponds to the name of the channel. The broadcasts are aired 24 hours a day and cover 10% of the RF population.

RTR Internet Sites

The best programmes of RTR TV channels and the latest news immediately appear on websites of the State Internet-channel “Russia”. There are online broadcasts of the TV channels “Russia 1” (www.rutv.ru), “Russia-24” (www.vesti.ru), “Russia Kultura” (www.tvkultura.ru), “RTR-Planeta” (www.rtr-planeta.com) and radio stations “Radio Russia” (www.radiorus.ru), “Radio Mayak” (www.radiomayak.ru), “Vesti FM” (www.vesti.ru), “Radio Yunost” (www.radiounost.ru) and “Radio Kultura” (www.cultradio.ru).

Every year RTR launches new TV channels for broadcasting via various media.

RTR is the Greatest Broadcaster in Russia

According to the data of the RF Ministry of Communications and Mass Media, there are over 3000 broadcasters in the Russian Federation that have licenses to broadcast TV and radio programmes (<http://www.rsoc.ru/>).

Nowadays publicly available free TV and radio channels are mainly distributed to the audience via analogue terrestrial broadcasting. Their number may amount to 20 TV channels and over 50 radio channels in big cities.

In the following diagrams the typical share of RTR channels is highlighted in red and put among the leading 20 TV channels and 20 radio stations of the total 3000 holders of broadcast licenses in Russia.

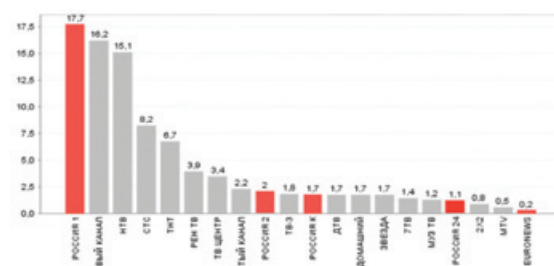


Figure 1. The leading Russian TV channels (Top 20)
http://propel.ru/rejting/r_tv.php

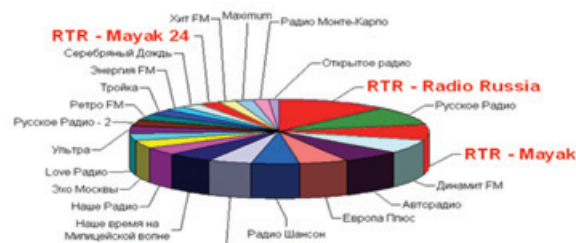


Figure 2. The leading Russian radio channels (Top 20)
http://www.brandmedia.ru/radio_rating.shtml

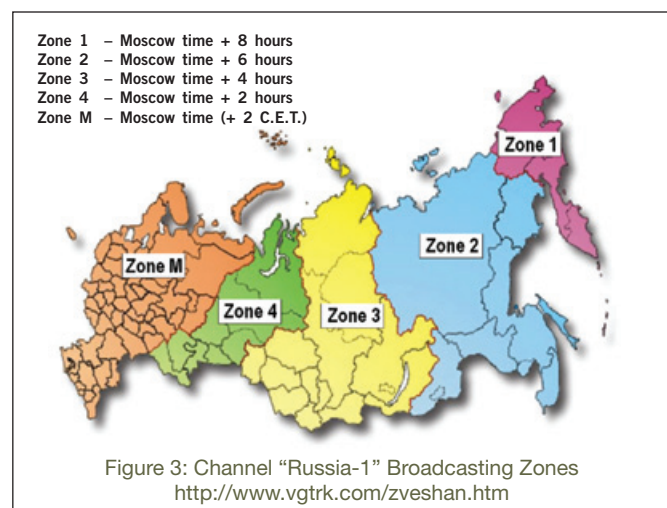
RTR is the only public broadcaster in Russia that aims at providing the people of the whole country with free to air TV and radio programmes distributed via all possible broadcast media: terrestrial, satellite, cable, mobile, Broadband, IP and others.

It is well known that the Russian Federation occupies about 1/8th part of the Earth, stretches for 4000 km from north

to south and 10 000 km from east to west and overlaps 170 degree of longitude and 11 time zones (from + 1 C.E.T. to +12 C.E.T.). The population of Russia makes about 140 million, counts over 130 nationalities and languages, the density of population varies from 320 to 0,02 person per square kilometer. The administrative division of Russia includes 83 regions and RTR has 80 regional affiliates.

Taking into account all these aspects, coverage of the whole population with the state TV and radio programmes makes a complex task.

To provide TV programmes to the audience at the convenient time the RTR broadcasts the main programmes ("Russia-1" and "Russia K") simultaneously for five time zones with a two-hour time shift between the zones so that the Far East (Zone 1) could receive the programmes 8 hours earlier than the European part of the country (Zone M). The leading private broadcasters (C1R, NTV, etc.) make their broadcasts in the same manner.



Via satellite network the RTR programmes are distributed to the capitals of 80 regions of the Russian Federation where RTR has its offices – regional state-owned TV and radio broadcasting companies. They produce their local programmes (news, information, commercials etc.) and insert them into the federal RTR programmes according to the single broadcast schedule with the duration of 2-4 hours a day. The regional versions of the federal RTR programmes are delivered via fibre optic and microwave lines to the terrestrial transmitters' network within every region. Local programmes are distributed through satellite systems within 39 regions.

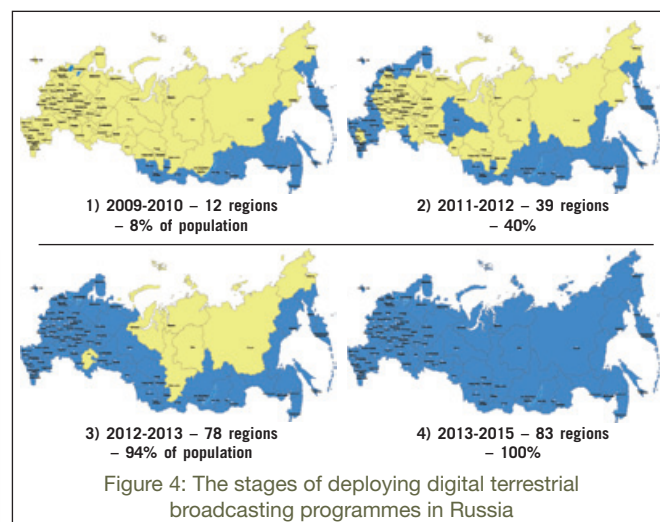
The RTR programmes are now transmitted with the help of 6 Satellites and 9000 Earth Receiving Stations, 8000 TV Transmitters, 160 AM Transmitters, 2200 FM Transmitters, 65000 km of terrestrial lines etc.

However, not all major RTR channels have their own frequencies for regional terrestrial distribution in the system of analogue terrestrial broadcasting. In small towns and villages there are just a few publicly available TV and radio channels though big cities offer up to 20 TV channels and 50 radio stations.

To provide all the RF population with a package of socially relevant channels the Federal programme of digital broadcast

development in Russia for 2009-2015 envisages at the first stage to launch the federal multiplex with 9 compulsory publicly available TV channels and 3 radio channels. The RTR channels make a considerable part of the package: 5 TV channels and 3 radio stations will be available gratis on all the RF territory.

The state enterprise "The Russian Television and Radio Network" (RTRN) is in charge of setting terrestrial distributing networks. At first the digital programmes were provided using DVB-T, now it has been decided to transfer to DVB-T2. The synchronous fixed-frequency networks of digital terrestrial broadcasting are implemented in 4 stages in the regions.



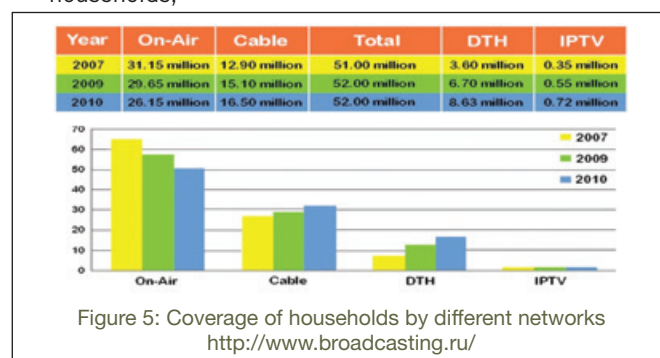
In the first Russian multiplex the function of "Gatekeeper" was taken by the state. Now the principles and composition of the second and subsequent multiplexes are developed. They will include over ten private broadcasters that already provide free transmissions, regional and commercial channels, HDTV and others.

For the last few years the Russian towns have seen a growth of cable, mobile networks and IPTV. DTH satellite systems are gaining popularity in the countryside.

According to the Russian journal "Broadcasting", in early 2011 50.3% of households received terrestrial broadcasts, cable operators served 31,7% of households, DTH operators served 16.6% and IPTV – 1.4% of households.

It is expected that by the end of 2015 the Russian households will use different types of broadcast reception:

- The digital broadcasts will cover from 10 to 15% of households;



- Cable analogue and digital TV channels will cover from 40 to 45% of households;
- 30-35% of households will get satellite broadcasts;
- IPTV broadcasts will cover from 5 to 10% of households.

The RTR Production and Technical Facilities

The content to fill the RTR federal channels is produced mainly in the RTR technical complexes in Moscow, partly in St. Petersburg. Some it is made in cooperation with film-makers, sports programme producers or supplied by foreign companies.

The programmes of regional affiliates are inserted into the federal news programmes of the channels “Russia 1”, “Russia 2”, “Russia-K” and make a considerable part of “Russia 24”. Moreover, the regional affiliates add their stories and commercials to regional slots of the RTR federal channels in the single broadcast schedule.

There are five RTR complexes in Moscow specialized in the production of news, culture, sports and art TV and radio programmes. A part of culture programmes is produced in the RTR’s office in St. Petersburg.

The RTR Moscow complexes use:

Television:

- 4 SD/HD Automated Transmitting Rooms with over 60 programme outputs based on Harris Automation; (programme and commercial outputs 24/7)
- 4 SD/HD Master Control Rooms, 1500 ins/1500 outs in total;
- 20 SD/HD television studios of 40 to 600 sq. m.;
- Newsroom with 200 workplaces for journalists;
- Over 60 workstations for tapeless video editing;
- Over 100 ENG/SD and 35 ENG/HD;
- Closed subtitling for deaf people provided on “Russia-1” and “Russia-K” for 7h/day on each channel;
- Over 10 HDTV OB Vans with 12 to 24 cameras, including super slow motion, some of them equipped with 5.1 audio;
- Over 10 DSNG HD/SD Fly & Drive Away.

Radio:

- 2 multichannel digital transmitting complexes AES/EBU;
- Over 40 radio studios, including 24 digital ones, 5.1, concert and orchestra studios of 400 to 600 sq. m.;
- 4 Audio OB Van including 5.1 audio.

Archives:

At present the audiovisual assets of the RTR TV channels comprise many hundred thousand hours of footage mainly on DigiBeta and XDCam. For the last few years there has been created a centralised archive to convert the footage of all the channels into the digital format MJPEG2000 lossless and to store it in robotic library Quantum Scalar i6000 with capacity of 5Petabyte and the possibility of further extension as soon as it is filled. It is planned to digitise over 130,000 hours of footage per year. A system of metadata based on Dublin Core, EBU Core Metadata, MXF etc. has been developed for that archive.

Communications:

The RTR facilities in Moscow are connected by fibre-optic and microwave links with over 30 stationary and half-stationary

terminals on most important premises like the Kremlin, the Parliament, Stadiums, Public halls, Skyscrapers, Teleports etc.;

The RTR teleport provides reception and transmission of programmes and live reports via 17 satellites to 50 directions simultaneously within the space over 150 degrees of longitude thus providing for RTR centre in Moscow direct satellite connections from Kamchatka to Central Europe. Besides, the RTR actively cooperates within the Eurovision network as well as with Russian and foreign operators of satellite and terrestrial communications to deliver programmes and collect the latest news from any place of the world.

Total number of staff of RTR central offices counts about 7,000.

The RTR Regional Affiliates

In 80 regions of Russia the RTR has production and broadcasting complexes focused on producing news and thematic programmes. Annually the regional offices produce 100,000 hours of TV programmes and 130,000 hours of radio programmes to be inserted into the RTR federal and local channels and the regional versions of the federal channels.

Any regional affiliate usually includes:

- 1-4 master control rooms (SDTV) 100 ins/100 outs in total;
- transmitting rooms (SDTV) with 2-4 programme outputs;
- 2-3 TV studios of 50 to 400 sq. m.;
- 6-15 workstations for tapeless video editing;
- 8-20 ENG
- Newsroom with 10-20 workplaces for journalists;
- 3-4 radio studios and transmitting rooms with 2-3 programme outputs;

Over a half of regional offices have OB Vans with 6-8 cameras.

12 from 80 offices are equipped with DSNG (Drive and Fly Away SD/HD) located in the territory of Russia in such a way so that they can reach any point within one day.

Total number of staff of regional affiliates counts about 13,000.

Contribution Network

The RTR created the Information Corporate Network (ICN) to collect and exchange audiovisual, administrative and programming information. ICN connects 100 RTR offices in regions of Russia and abroad through VPN/MPLS (10 Mbit/sec) satellite and terrestrial communications.

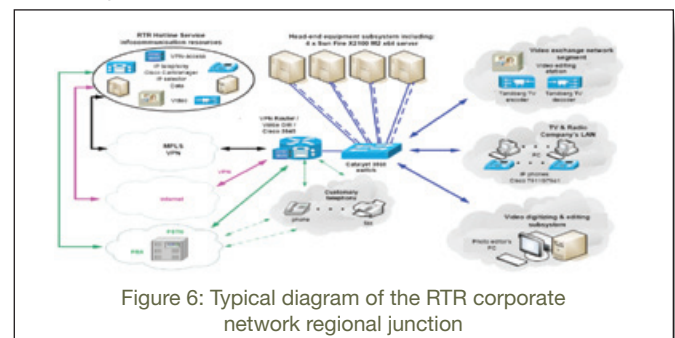


Figure 6: Typical diagram of the RTR corporate network regional junction

The Network provides for the united newsroom and archives, SNG, Ethernet, IP telephony etc. ICN also serves to fill and support Internet sites of RTR and its regional offices. At present the Network covers almost all the RTR regional offices.

The RTR Prospects

It is planned in the next few years:

- To convert fully federal programme production to tapeless HDTV technologies, extend capacities of news production, studio and outside broadcasting;
- To finish equipment upgrading in regions including the use of tapeless technologies and automated insertion of regional programmes into federal channels;
- To provide an access (Fiber optic lines or IP-connections) for all regional RTR branches to digital terrestrial broadcast networks developed by RTRN and then start a digital switchover in each region;
- To improve Access Services for viewers – to increase the volume of closed subtitling on the two federal channels from the present 7 hours a day to full broadcast hours, and to study the aspects of audio subtitling introduction;
- Upon the switch to digital broadcasting to provide for the insertions of the programmes of regional branches into all the RTR federal channels in all the regions of the country;
- To extend the presence of the RTR thematic channels in regional cable, satellite and IP-broadcasting networks;
- To finally spread the Information Corporate Network over all the regional branches;

- To raise the economic efficiency of programme production and broadcasting;
- And others.

All these factors will allow the RTR, a state TV and radio company, to remain the leading broadcaster in Russia.

Technical Cooperation with the ABU

Within technical cooperation with the ABU the RTR specialists took part in Technical Advisory Service (TAS Mission) for the ABU members:

- In February 2005 the RTR arranged workshops and consultation on the planning of technical development of KTR – KirgizTeleRadio, the National TV and Radio Broadcasting Company of Kirgizstan;
- In November 2010 the RTR arranged workshops on HDTV programme shooting and editing for the National TV and Radio Company of Uzbekistan (NTRC Uzbekistan);
- In August 2012 the RTR arranged a consulting service on HDTV technology and future development for NTS Kyrgyzstan (New TV Network).

author



Gennady Kachalov
RTR, ABU Technical Liaison Officer

Gennady Kachalov has been working for the RTR since 1991. As the Senior Technologist he developed the project for equipping the new set-up including the first in Russia digital production and broadcasting complexes for TV and radio, the first newsroom, digital archive, etc. At present he is providing for the technical outfit of 80 regional RTR divisions targeted at the switch to digital broadcasting.

For 12 years (1999 -2010) he has been a member of the European Broadcasting Union Technical Committee, currently he is the Technical Liaison Officer of the EBU. Since 2003, he has also been the ABU Technical Liaison Officer.

Gennady Kachalov is currently the Deputy Director of the Regional Production and Technical Directorate of the Russian State TV and Radio Broadcasting Company – RTR

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RUSSIA
TELEVISION AND RADIO

RUSSIA 1

RUSSIA 2

RUSSIA 24

RUSSIA K

SPORT 1

SPORT

PLANETA RTR

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RADIO RUSSIA

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ABU Technical Bureau Meeting DECISIONS TAKEN



The ABU Technical Bureau met in Kuala Lumpur on 9th and 10th of May 2013 for its mid-year meeting. The meeting reviewed the progress of current activities carried out since the last Technical Committee (TC) meeting in Seoul. It also addressed several important issues of concern to broadcasters and identified specific areas of interest based on technological developments taking place around the broadcasting world.

The Bureau discussed action on many issues to enhance services to all members and the following describes some of the key decisions that were taken:

- The Bureau decided to look into the training requirements of members in order to better understand their specific needs. This would include conducting a survey among the members to identify areas where members seek more training opportunities for their staff. This exercise will be taken up by the Training and Services Area of the Study Topics setup by the TC. This initiative is to align the training activities carried out by the Technology Department to those of the requirements from members, in order to serve them more effectively.
- The four Study Topic areas, namely Production, Transmission, Training and Services and Spectrum presented their reports on their relevant projects. The reports highlighted the developments and updates from the 26 study projects under the topic areas, forums and groups. One of the areas of discussion included the results of the survey conducted by the metadata group. The project group is looking into compiling a common baseline Metadata Schema for ABU members regarding applications of archiving and item exchange.
- The Bureau also agreed to examine and make a review the WBU's Digital Radio Guide handbook which was initially published in 2007. The ABU Digital Radio Forum will take up this task to study and recommend any necessary changes to this informative handbook. The



Forum was also tasked with running a survey among the radio broadcasters and industry to find and understand reasons why the take-up of digital radio in the region is slow.

- Two specific tasks were added under the relevant study projects to study the developments taking place in Hybrid TV and UHDTV. With more than one hybrid platform in the market the project group will study the differences and similarities in each of the technologies available and identify common elements within the platforms. The group will draw up a guideline for the broadcasters in the region which will help in their approach towards selecting the most appropriate standard for their market. The NGBS group was tasked with following the developments surrounding UHDTV deployment including acquisition, production, spectrum and delivery methods, and to come up with a guideline on the roadmap for UHDTV implementation for broadcasters in the region.
- The meeting also made a review of the preparations for the annual Technical Committee meeting to be held in Hanoi in October this year. The members were briefed on the preparations for the upcoming meeting and discussed the Special Topic Session and the CTO Forum. After careful consideration of the current schedule the members further decided to reduce the meeting from three days to two days in order to make it simpler and to lessen the burden on the delegates and others involved.



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OLED Technology: Clear Advantages for Professional Monitors

by **Steven Yim**

Sony Corporation of Hong Kong Limited

No one will argue that the reference monitor is one of the key pieces of equipment in the broadcast workflow. Whether you are a broadcaster or production house, you always need a monitor that can be trusted to help you conduct a final check of the content.

The objective of the professional monitor is, in simple words; 'To display the source faithfully'. In the following explanation, we try to explore how OLED technology can meet this simple yet tough objective.

Different Types of Display Technologies

In the Professional Monitor markets, there have been different types of display technologies through different eras. Between the 1960's and 2000's, the CRT (Cathode ray tube) was the dominant display technology. Then came the LCD. Now widely in use, the LCD has a lot of advantages for professional monitor applications; e.g. wide colour Space, high resolution (up to 4K or even 8K), various screen sizes (from 2" to 110"), high cost/performance ratio, etc. However, at the same time many customers still prefer a CRT because of some limitations of LCD technology, especially in terms of black reproduction and response time performance.

Other than CRT & LCD, Plasma display technology has also become popular in the 2000's. Plasma technology is also good for professional monitor applications, e.g., they can have a relative good black reproduction, fast response rate, etc. Unfortunately, two of its limitations, the burn-in problem and also the high manufacturing cost for small displays (17" or 25"), make it unpopular in professional monitoring applications.

What is OLED?

Other than CRT, Plasma or LCD, there is now another display technology named OLED, which is an excellent display technology for professional monitors, especially in comparison with the most commonly used LCD display technology.

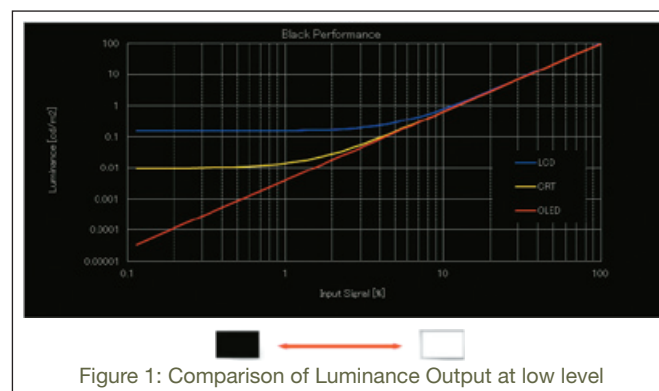
OLED is an acronym for Organic Light Emitting Diode. It uses an emissive technology that generates light from an organic compound when exposed to an electric current, delivered through two electrodes. Unlike LCD, no additional backlighting is required, which has many advantages, as explained below.

Why utilise OLED for Professional Monitors?

For years OLED has been talked about as the next generation of display technology. Many manufacturers are already using OLED displays for different kinds of applications e.g. mobile phone displays. For the Professional monitor application, however, what are the advantages of OLED monitors? If the objective of a professional monitor is, 'to display the source faithfully', how might OLED help achieve that? Let's explore several aspects of this:-

Black Reproduction (Fig 1)

One of the biggest achievements of OLED technology is black reproduction. To date no other display technology has been able to offer this kind of black. For example LCD has its intrinsic light leakage; Plasma has to use methods of keeping the emission active to react quickly to changes in luminance and CRT has always needed a bias voltage applied to place the gun at the proper operating level. All of these techniques have resulted in some sacrifice in black performance. OLED, on the other hand, can display the 'true black' by turning off the pixel completely.



Colour Gamut (Fig 2a 2b)

Many people believe that a display will replicate the entire specified colour gamut regardless of the grey level, unfortunately reality tells another story. Because technology limitations the gamut performance at lower levels has always been affected. Taking OLED vs. LCD as an example, the gamut marked as the red line shows the performance of each technology when at full brightness. However, the same measurements at lower brightness levels show that LCD will not retain the same level of saturation. The area shown with the yellow line shows the change of gamut range at lower video levels.

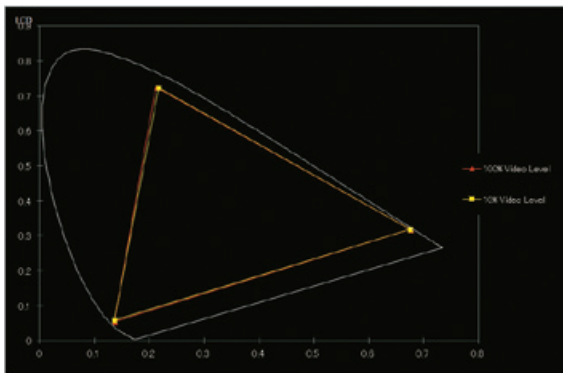


Figure 2a. OLED Colour Gamut Performance

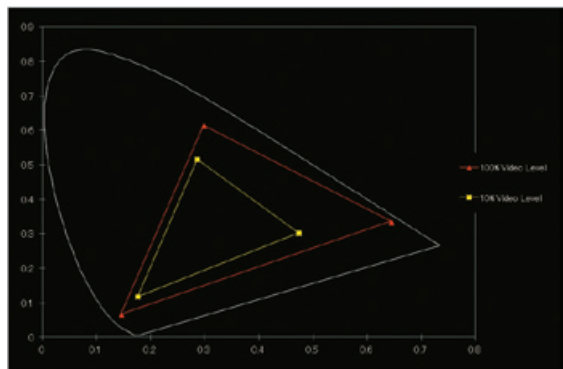


Figure 2b. LCD Colour Gamut Performance

Contrast (Fig 3)

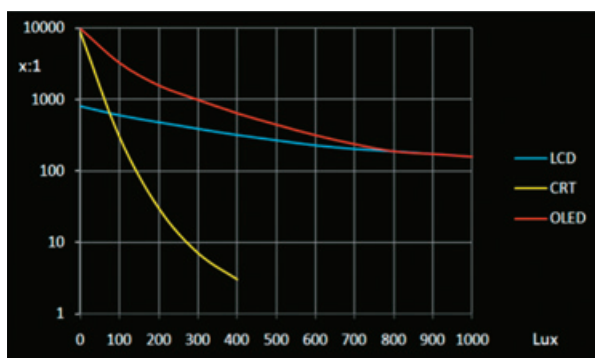


Figure 3. Contrast performance of LCD, CRT and OLED

Good contrast performance is very important for professional monitors. Unfortunately, current display technologies have their own limitations, e.g. CRT screens will become whitish

in a bright environment because the ambient light enters the thick glass through the surface which affects the black reproduction of the image due to internal reflection. LCD technology cannot display an accurate black in a dark environment due to the intrinsic light leakage. An OLED display, on the other hand, offers good performance in both dark and bright environments. See below, the “Contrast Performance in Ambient Light” of LCD, CRT & OLED.

Response Time

One of the main issues of the LCD display is response time, which is measured in milliseconds, ms, whilst OLED display gray-to-gray switching speed is measured in microseconds, μs ($1 \text{ ms} = 1,000 \mu\text{s}$). In other words, OLED will have superior performance in the reproduction of fast moving objects (e.g. in sports broadcasting) or moving titles and graphics.

Viewing Angle

If you have been working in the industry long enough, you will appreciate the Viewing Angle of the CRT, which shows no colour shift from any angle. OLED used to have viewing angle issues similar to LCD, but with a new panel, just introduced in NAB 2013, this issue has been much reduced by cutting colour shift by half in comparison with previous models. Now, with these improved panels, users do not need to worry as much about viewing angles.

White Balance Matching

Because the Colour Spectrum of CRT & OLED is different, even though the XY chromaticity values are the same, viewers see different white balances when comparing CRT, LCD & OLED. In order to improve the white balance matching the “Judd modified colour matching function” has been introduced to supplement the “CIE1931 colour matching function”.

Summary (Fig 4)

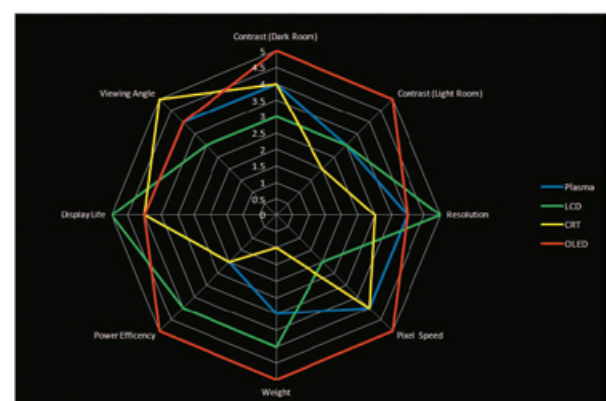


Figure 4: Summary of different aspects of Display Technologies

In short, OLED technology has several advantages over the existing LCD or CRT technology in many aspects. Please see above the diagrammatic summary of different aspects of

display performance. We believe with OLED technology we can move closer to the objective of fulfilling the role of the Professional Monitor – ‘to display the source FAITHFULLY’.

author



Mr. Steven Yim

Product Manager

Broadcast & Content Creation Marketing Division, Professional Solutions Asia Pacific Company (Hong Kong)
Sony Corporation of Hong Kong Limited.

Steven Yim is the Product Manager of Professional Monitor and Professional Audio of Sony in the Asia Pacific region. He started working with Sony from local branch office in Hong Kong then transferred to the regional office in 2012. Steven has more than seven years of product marketing experience of Sony professional products including many B&I and also the content creation products.



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Enabling the Broadcasters to Strive and Thrive

Radio and television organisations in the broadcast industry operate broadcasting stations and networks. The broadcast industry includes establishments that create, manage, distribute and deliver radio and TV content. Content may be delivered via over-the-air broadcast terrestrial networks, as well as cable, satellite and other delivery mechanisms. Today, we can observe rapid developments in the complete value chain of radio and television broadcasting with significant improvements at the acquisition, processing, distribution and transmission levels, noticeable in recent times. These developments provide opportunities as well as threats to the industry.

Today, one of the hot topics is 4k and the next step will be 8k resolution. A number of broadcast stations have already started acquisition using 4k cameras and Japan has planned to commence 8k transmissions by 2020.

TV with 8K resolution is effectively 16 times more detailed than the current 1080p standard. Proposing its Super Hi-Vision format, NHK promises 8k together with 22.2 channel audio. Despite these developments the vast HD investments made by

broadcasters and manufacturers, are safe, since 8k resolution and Super Hi-Vision broadcasting are still some distance in the future. This is because current infrastructures are unable to handle the extended bandwidth requirements of 8k broadcasting.

In recent years delivery mechanisms have gone through dramatic changes, challenging traditional over-the-air (OTA) interfaces. Traditional broadcasting has been typically OTA and free-to-air. The business model was one of revenue generation, mainly through advertising. Now, with changing listening and viewing patterns, Over-the-Top (OTT) is gaining momentum.

Digital radio and television has been rolled out in many countries. It is inevitable that this transition has to be made. However, it is not economically feasible for both analogue and digital transmissions to co-exist, other than during a simulcast period. It is also required to ensure that no communities are isolated or deprived of accessing such radio and television broadcasts. The ABU is actively working, together with the ITU, to mitigate the digital divide.

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

Additional Full Members

DIGITAL BROADCASTING CORPORATION HONG KONG LIMITED, HONG KONG

Digital Broadcasting Corporation Hong Kong Limited was established in August 2011 and registered on 2 February 2012 in Pok Fulam, Hong Kong. Its first radio transmission went on air on 28 February 2013. Digital Broadcasting Corporation Hong Kong Limited is a free-to-air broadcaster producing approximately 80 percent of its own programmes. It offers digital audio broadcasting services on 7 channels on DAB+, Band III, 220.352 MHz.

SOLAR ENTERTAINMENT CORPORATION, PHILIPPINES

Solar Entertainment Corporation, a private company, was registered in Mandaluyong City, Philippines on 13 August 1993. The company began its television transmissions in May 2001. The broadcasting networks, Solar Television Network Inc. and Solar Entertainment Corporation are both engaged in the acquisition, distribution and promotion of quality, world-class foreign language programmes and formats in partnership with major international studios and content producers. The companies also produce localised franchised programs as well as local programs.

Associate Member

VOICE OF NIGERIA, NIGERIA

Voice of Nigeria (VON) is an External Service of the Federal Radio Corporation of Nigeria (FRCN), formerly known as Nigerian Broadcasting Corporation (NBC), and was established in 1961 in Abuja, Nigeria. It became an independent corporation on 5 January 1990, when it was excised from the Federal Radio Corporation of Nigeria by Decree Number 15, of 14 May 1991. Voice of Nigeria transmits globally on 7255KHz on 41 band, 9690 KHz on 25m band, 15120 KHz on 19m band and 11770KHz on 31m band in English, Arabic, French, Kiswahili, Hausa, Fula/Fulfulde, Igbo and Yoruba languages.

Affiliate Member

ATTITUDE PICTURES LIMITED, NEW ZEALAND

Attitude Pictures Limited was incorporated in Auckland, New Zealand, on 16 December 1992 under the company name of RSVP Productions Limited and later changed its name to Attitude Pictures Limited on 7 December 2009. Attitude Pictures Limited is one of New Zealand's documentary production companies and is one of the providers of television content based on the lives of people living with disability. It has the aim of developing awareness, empathy and respect for the unnoticed.

BENCHMARK TELECAST INTEGRATION PTE. LTD., SINGAPORE

Benchmark Telecast Integration Pte. Ltd. is a private limited company, incorporated in the Republic of Singapore on 27 December 2012. Its principal activities involve computer systems integration. It is an offshoot of ABU Affiliate member Benchmark Broadcast Systems (S) Pte Ltd, which has been a member since 2005. However, due to a company and management restructure, Benchmark Telecast Integration Pte. Ltd. was formed to undertake the division of the business.

INDEPENDENT TELEVISION SERVICE, USA

The Independent Television Service (ITVS) was created by independent producers, the media arts community, and NGOs seeking to foster plurality, diversity, and innovation in public television. ITVS brings independently-produced, public broadcast and new media programmes to local, national and international audiences. ITVS funded its first wave of programs in 1991, introduced its national community engagement project in 1999, and internationalised in 2005 with the Global Perspectives Project (GPP).

IRIB UNIVERSITY, IRAN

The Islamic Republic of Iran Broadcasting (IRIB) University is a public institution with campuses in Qom and Dubai in Tehran, Iran. It is an affiliate of the Islamic Republic of Iran Broadcasting (IRIB). When the institution was first established in 1966 it was known as Technical Training Center, which was later changed to IRIB College and subsequently to IRIB University. Their main goal is to educate skilled artists and technicians in the field of media Production.

MICHAEL MCCLUSKEY MEDIA CONSULTANCY, AUSTRALIA

Michael McClusky Media Consultancy was registered on 5 April 2013 in Victoria, Australia. Dr Mike McCluskey started the consultancy business as Sole Trader after having worked for the Australian Broadcasting Corporation (ABC) as journalist, radio presenter and media executive for more than three decades. He held management positions and served as ABC's State Director of NSW in Australia. Dr McCluskey was ABC's Head of Corporate Social Responsibility as well as CEO of Radio Australia.

ORBAN EUROPE GMBH, GERMANY

ORBAN Europe GmbH is a private limited liability company that was established in Ludwigsburg, Germany, on 23 April 2003. Their main business consists of development, sales and provision of services relating to communication systems. ORBAN Europe GmbH manufactures digital audio processing media equipment for DTV, DAB and Webcasting at its company in Germany whereas the engineering part of the business is located in San Leandro, USA.

PANASONIC SYSTEMS ASIA PACIFIC, SINGAPORE

Panasonic Systems Asia Pacific is a sales division of Panasonic Asia Pte. Ltd., registered as sole proprietor on 1 October 2004 in Singapore. Their business activities involve manufacturing, wholesale distribution of pagers, hand-phones and other telecommunications apparatus as well as office machines and equipment, including accessories. In 2001, Panasonic Asia Pacific assumed the role of a regional headquarters for the Asia and Oceania region, providing support in logistics, information communication, financial services, human resource development and productivity enhancement for Panasonic companies in the region.

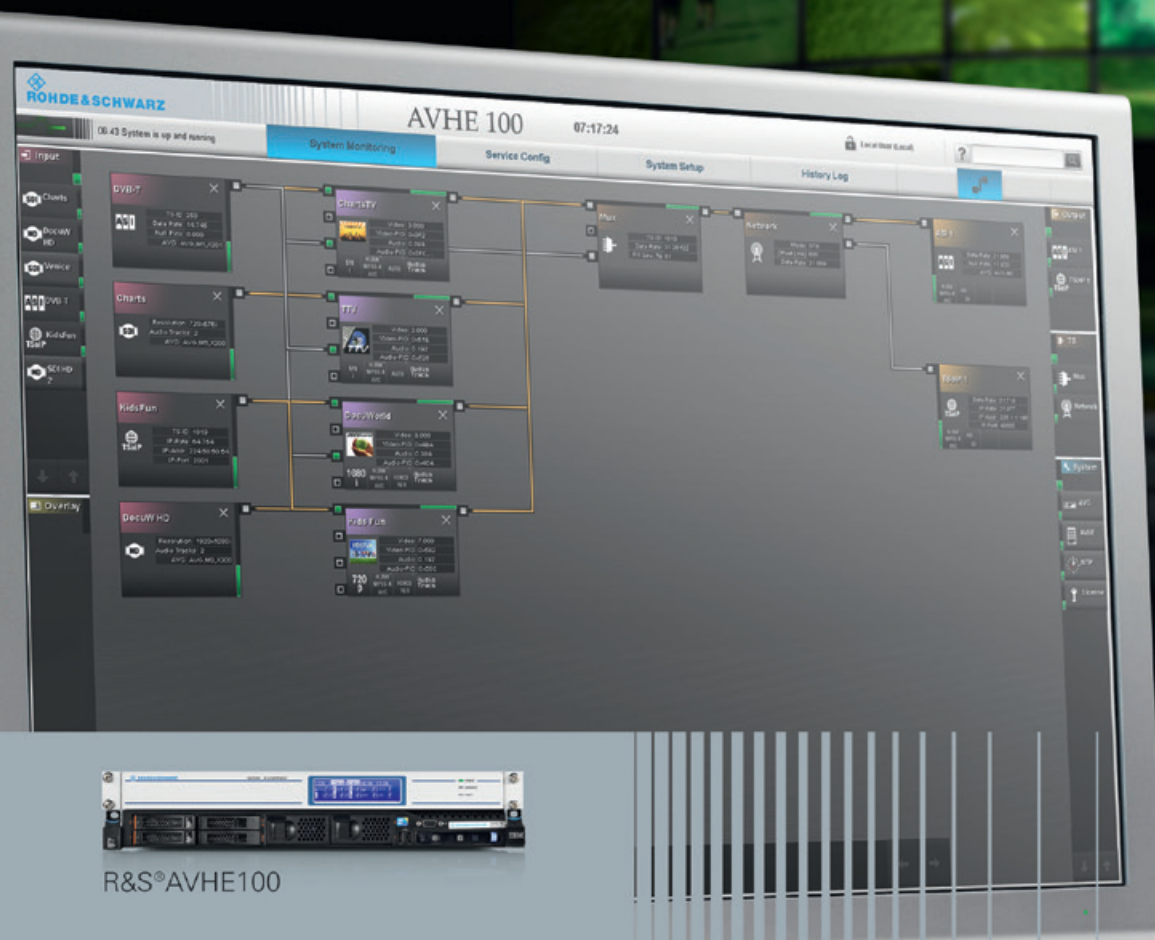
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ABU ENGINEERING AWARDS 2013

ABU



ABU Developing Broadcasters' Excellence Award

- This is a newly established award sponsored by SONY.
- Awarded for contributions of an outstanding nature in broadcast engineering made by an individual in a developing broadcasting organisation.
- The award comprises a citation, a trophy and a study tour.

SONY
make.believe

ABU Green Broadcast Engineering Award

- This award is sponsored by KOBA.
- Awarded for outstanding contributions in developing, implementing and/or promoting green technology in the broadcasting industry.
- The award comprises a trophy and cash prize presented at the opening session of the ABU Technical Committee meeting.

KOBA 2014

ABU Engineering Industry Excellence Award

- Awarded for outstanding contributions in broadcast engineering and related disciplines.
- The award consists of a citation plaque and a trophy.

ABU Broadcast Engineering Excellence Award

- Awarded for outstanding engineering contribution made by an individual to the broadcasting industry in the Asia-Pacific region.
- The award comprises a citation plaque and a trophy.

April – Nominations Open

30 June – Entries Deadline

August – Judging

25 October – Announcement of Winners **ABU Technical Committee Meeting HANOI**

28 October – Presentation of Trophies **ABU Prizes Night HANOI**

For more information and nominations forms
www.abu.org.my/engineering-awards

DEADLINE EXTENDED TO 31 JULY



DISTINGUISHED OBSERVERS TO THE ABU TECHNICAL COMMITTEE

ABU BROADCAST ENGINEERING EXCELLENCE AWARD



2003
Taiji Nishizawa
Nippon Hoso Kyokai,
Japan



2004
Richard Burton
FreeTV
Australia



2005
Valod Stepanian
Islamic Republic of
Iran Broadcasting



2006
A S Guin
All India Radio



2007
Kim Sangjin
Seoul Broadcasting
System, Korea



2008
Takao Shimizu
Tokyo Broadcasting
System Inc, Japan



2009
Law Man Hoi Wicky
Phoenix TV
Hong Kong



2010
Dr Abdolali Aliaskary
Islamic Republic of Iran
Broadcasting



2011
A K Bhatnagar
Doordarshan,
India



2012
Dr Kazuyoshi Shogen, B-SAT, Japan

ABU ENGINEERING INDUSTRY EXCELLENCE AWARD



2003
Bimal Kumar De
Doordarshan-India



2004
R K Gupta
Doordarshan-India



2005
Dr Takehiko Yoshino
Nippon Hoso Kyokai-
Japan



2006
Dr Osamu Yamada
Pioneer Corporation,
Japan



2007
Ding Wenhua
China Central
Television/CCTV-
China



2008
Dr Ahn Dongsu
Ubiquitous Media
Contents Alliance,
Korea



2009
Tay Joo Thong
MediaCorp TV
Singapore



2010
Zhang Jianping
Jiangsu Broadcasting
Corporation/RTPRC-
China



2011
Wang Jianqiang
Shanghai Media
Group, China



2012
James Rodney Santiago, ARIB, Philippines

ABU GREEN BROADCAST ENGINEERING AWARD

2012
Seon Kwon Kim
Korean Broadcasting System



ABU LIFETIME ACHIEVEMENT AWARD



2008
Peter Senger
Deutsche Welle
Germany



2009
John Bigeni
DVB
Asia



2010
Joan Warner
Commercial Radio
Australia



2011
Dr Jonghwa Lee
Korean
Broadcasting
System



2012
Doan Viet Trung
Voice of Vietnam



2013
Erina Tobing
LPP Televisi
Republik Indonesia



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Exceptional Value
Intelligent Features**

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PUSHRADIO™



Integrated
Digital Exciter



Backup Audio



Nautel
PhoneHome



IP Audio



Streaming Input



And **MORE**

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Audio spectrum analyzer
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Scheduler
Instrumentation
Play lists

Videos, webinar
and more at
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A REPORT ON Sony Study Tour

Dr Kazuyoshi Shogen of B-SAT was invited to Hong Kong and Tokyo by Sony Electronics Asia-Pacific for the study tour, in relation to the 2012 ABU Broadcast Engineering Excellence Award. He visited Sony Electronics Asia Pacific, TVB, AsiaSat, RTHK in Hong Kong, and Sony Headquarters in Tokyo on the 20th, 21st and 27th of May 2013.

Sony Electronics Asia Pacific



Mr Norihisa Mizuno, Mr Chris Grey, Ms Joan Chan,
Dr Kazuyoshi Shogen, Mr Randy Ng, Mr Wilfred Leung

Dr Shogen met with Mr Chris Grey, Mr Norihisa Mizuno, Mr Randy Ng, Mr Wilfred Leung and Ms Joan Chan. The Sony team introduced the HDTV roll-out in the Asia region, as well as discussing the interest of this market in new technologies, such as 4K. It was interesting to learn that quite a few broadcasters and television production companies in Australia, Hong Kong, Malaysia, and other countries in the Asia-Pacific region recently migrated their studio equipment to HDTV standards.

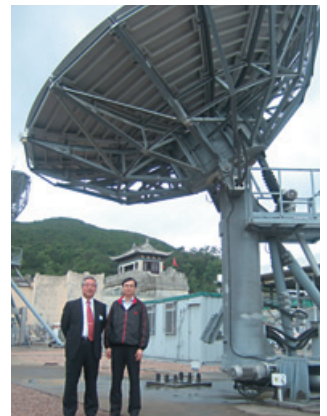
TVB



Mr Chris Grey (SONY), Mr Johnny Yeung (TVB),
Dr Kazuyoshi Shogen, Mr. Chan Yiu Chow (TVB),
Mr Wilfred Leung (SONY)

TVB is known to be the first commercial free-to-air broadcaster in Hong Kong. Dr Shogen had a meeting with Mr Johnny Yeung, Mr Chan Yiu Chow and

Mr Stephan Ng. The key activities of TVB include television broadcasting, programme production, programme licensing, video distribution, satellite broadcasting, etc. The main discussion centred around the digital switch over of terrestrial broadcasting. In addition to the whole coverage by digital transmitters, the proliferation of digital receivers is the critical issue for analogue switch off. TVB is moving to HDTV for all 5 channels of DTTB in order to proliferate the digital receivers to homes, and has set a target to switch to full HD services by the middle of 2013. TVB also explained the status of its step-by-step process of deploying tapeless workflow within its operations.



Dr Kazuyoshi Shogen,
Mr Stephan Ng (TVB)

AsiaSat



Mrs Sabrina Cubbon

At the commercial communication satellite operator, AsiaSat, Dr Shogen had a meeting with Mrs Sabrina Cubbon, Mr Roger Tong, Mr Tik Yau, and Mr Fred Ho at its Tai Po Earth Station. The broadcast customers of AsiaSat are spread all over the world and the company transmits 500 channels for over 150 radio and TV services, penetrating into 620 million Asian



AsiaSat Tai Po Earth Station

households. The main discussion topic was around the stable operation of satellite control and uplink operation. During his visit, there was heavy rain with lightning, quite unusual for this season. Despite of such weather conditions, services were not affected at all. In the case of electric power outage, AsiaSat indicated that the power would be fully backed up by in-house electric power generators and UPS's (Uninterruptible Power System).

RTHK



Mr Tai Keen-Man, Dr Kazuyoshi Shogen, Mr Ir Francis Kwok

At Hong Kong's public broadcaster, RTHK, Dr Shogen had a meeting with Mr Tai Keen-Man, Mr Ir Francis Kwok, and Mr Stewart Lee. The key discussion was on the migration of broadcast/production technologies and equipment to new generations such as file-based TV production, DAB+ and HDTV broadcasting. RTHK will increase its broadcasting time by using a DTT multiplex dedicated to RTHK. In order to do so, RTHK is now setting up DTT broadcasting facilities as well as planning to establish the fill-in stations for enhancing coverage; targeting for 99% of Hong Kong's

population. In addition to this, the broadcaster has a plan to move to a new site in the near future. Therefore, the staff of the organisation are very busy and full of vitality.

Sony Headquarters

Dr Shogen had a meeting with Mr Takahiro Matsunaga, Mr Kento Sayama and Mr Hiroaki Nishimura. The primary discussion point of the visit centred around the future of broadcast/production technologies and equipment, such as 4K cameras, 3D cameras, OLED master monitors, as well as 4K TV displays (84", 65" and 55"). Sony has already developed the 4K production chain, including the 8K CMOS sensor high-end 4K camera, flash memory cards capable of recording 4K video, as well as LCD based 4K production monitors. The discussion indicated that Sony is clearly looking into enhancement of its 4K line up, to promote 4K to movies as well as the broadcast industry, for use in 4K entertainment as well as in the current HD production environment. The visit also covered another important topic, the changing viewing style of the consumer. Sony presented some of its ideas about connecting Smart Phones with TV, as well as connecting various consumer equipment/gadgets via NFC (Near Field Communication).



Sony Headquarters
Mr Takahiro Matsunaga, Dr Kazuyoshi Shogen, Mr Kento Sayama,
Mr Hiroaki Nishimura

ABU Technology CALENDAR OF EVENTS 2013

26-29 July	VOV/WorldDMB Workshop on Digital Radio Technologies	Hanoi
5-9 August	ABU-HFC E-mail Coordination for B13 Season	Kuala Lumpur
12 Aug-12 September	Technology Webinar Festival 2013	Kuala Lumpur
20-22 August	Regional Workshop on OTT and HBB Technology for Broadcasters	Kuala Lumpur
26-28 August	ABU-Central Asia Media Forum	Bishkek
August-September	UN-ESCAP Workshop Series on EWBS	6 countries
12-17 September	International Broadcasting Convention-IBC2013	Amsterdam
17-19 September	Pacific Media Partnership Conference 2013	Vanuatu
September	DRM+ Digital Radio Implementation	Tehran
September	ABU Workshop on HDTV Studio Planning tbc	
25-26 October	ABU Technical Committee Meeting	Hanoi
November	Workshop on Radio Studio Automation	tbc
13-15 November	Inter BEE 2013 Tokyo	
25-27 Nov	ABU Regional Seminar on Archiving	New Delhi

Colombo Workshop Report

ABU Regional Workshop on Satellite Technologies



ABU Technology, together with EAP Networks, organised a three-day Regional Satellite Workshop from 14-16 May 2013 in Colombo, the capital city of Sri Lanka. The workshop entitled, “Satellite Broadcasting Technologies”, was targeted at engineers, satellite technicians and operators in the region and was attended by total of 60 participants, comprising ABU members and other broadcasters from Pakistan, Bangladesh, Malaysia, Turkey, Myanmar, Maldives, Brunei and Sri Lanka. The event included contributions by Newtec, Eutelsat, Becil, Asiasat and APT.

The keynote address of the Workshop was given by Kithsiri Samarasinghe from the University of Moratuwa, Sri Lanka. He highlighted the unique role of the satellite, whereas RF had limitations in providing global connectivity. He mentioned the latest trends in service provision, orbits and satellite engineering, highlighting that a combination of UHDTV, HEVC and next-gen DVB-S2 Extensions may present a technology platform for the evolution of television.

Pradeep Asthana of Newtec made a presentation on earth stations and feeder links. He defined the stages of setting up an earth station and the required equipment and components. In comparison with C-Band and Ku-Band; C-Band is widely available and has less rain fade and needs lower transponder power, but needs larger antennas, and has more terrestrial interference. However, Ku-Band allows smaller antennas and has less terrestrial interference, though requiring more transponder power as well as having more rain fade, narrower beam coverage and not being available worldwide. He explained the advantages of feeder link connections, gathering local content for common broadcast signals, providing reliable links at defined bitrates and efficient modulation and coding and finally, he introduced the “Noise and Distortion Estimator”. Mr Asthana’s second

presentation on “Direct-to-Home Platforms” looked into the advanced features of DTH networks with the provision of larger footprints, more customers, revenues and redundancy. He described the convergence from ASI to transport stream over IP, building blocks for optimised earth station design to bridge distances between studio, operation room, RF shelter and equalink to improve the signal quality in the DTH networks are all possible.

Palitha Gallage from SLRC made a presentation on the fundamentals of Satellite technologies. He explained the digital modulations QPSK, 8PSK, the determination of link C/N ratio, types of interferences in satellite communication systems like terrestrial, cross polarisation, intermodulation interferences.

Vikas Garg from AsiaSat presented the topic “Digital Television via Satellite” defining the TV distribution services as UHF/VHF/DTT networks, DTH, MSO cable systems, IPTV, mobile TV, Direct to Home receptions and satellite news gatherings. He highlighted the key features of MCPC platforms as full transponder DVB-S2, C and Ku-band, instant access to Asian TV platforms, home viewers, one-stop transmission solutions and consumer remote monitoring. He recommended DTH solutions for Asian countries with 16 Ku-band transponders with redundancy in-orbit backup.

Ahmed Umar from VTV-Maldives defined the “Design and operation of a transportable earth station”. He stated that as a result of the rapid technological developments during the past decades, satellites of high power and high gains were launched worldwide and simple & small ground terminals for gathering news from remote and in-accessible places set up. In order to compete with terrestrial counterparts, innovative tools are required such as broadband, Ka-band,

highly-transportable Ku-band terminals, improved error-correcting modems and compression systems and other Internet facilities. To design transportable terminals, fixed large TV uplink earth station should meet the entire critical CCITT standard for TV broadcasting and typical features of an SNG terminal should be small size, lightweight, compact design and low power consumption, with the capability of rapid transportation by road, sea or air. An important factor to be considered when selecting a site for a transportable earth station is the availability of reliable commercial power supplies. It is essential to plan for standby power supply to take care of failure in the commercial supply and to have an uninterrupted power supply (UPS).

Cynthia Zhang from APT Satellite introduced the MCPC (Multiple Channels per Carrier) platforms. Compared with Single Channel per Carrier (SCPC) platforms, MCPC improves the output power of satellite transponders, the power in downlink is doubled. Cable operators can get satellite signals with smaller sizes of antenna, thus aggressive modulation mode is allowed, in order to save bandwidth requirements of TV/Radio channels. She also mentioned the Web TV Platform which allows broadcasters to FTP the video file or video Streaming into video server and re-encoding the video into multi-media format and translating to Weblink or apps for Web browsing and viewing.

On the second day of the Workshop, Power PAN of APT Satellite made a presentation on "WiMAX Impact to Satellite TV Reception and Solutions". He highlighted the advantages of WIMAX as high speed broadband services, less expensive than cable with the broad coverage of mobile networks. Sharing the experiences of an implementation in Bangladesh, he suggested solutions for WIMAX interference to satellite TV reception due to co-frequency emissions, unwanted emissions and signals from nearby transmitters.



Pankaj Giri and Prateek Katoch from BECIL reported on the Growth of C-Band Broadcasting in India. They stated that over 600 TV channels, 7 DTH operators, 1200 Multi system operators (MSOs) use the C-band to distribute their content. The total number of households in India is 223 million and 50 millions of those are covered by DTH services. They also referred to the Headend in the Sky (HITS)

platform, which provides digitally compressed programming via C-band satellite, with a uniform encryption system.

Simon Pryor of Newtec enlightened the hall on advanced Satellite IP TV & Radio Networks. Because video transmission needs and absolute satellite volume are increasing, satellites, complimentary to fibre, Internet and mobile are required. He gave the examples of satellite "when nothing else works". He also mentioned about the multiservice broadcast systems merging various platforms with satellite networks. In his second presentation, Mr Pryor explained the "DVB-S2 Extensions" comparing with DVB-S2 and DVB-S in terms of modulation, efficiency, granularity and gain. He also shared the results of a survey on the "standards," conducted in 400 companies which indicated that 55% of broadcasters find the extensions very important.

Cristiano Benzi from Eutelsat informed the participants on the first Full-Ka HTS Satellite, launched in December 2010 and which started operating in May 2011, covering the whole Europe with 82 beams and 90 Gbps capacity. He stated that main target of Ka-Sat is broadband Internet connectivity to residential users via bidirectional user terminals. The services that Ka-sat provides are consumer and professional data services together with SNG and DTH broadcast video services. He also shared experiences of an implementation in Ireland and described the advantages.

On the last day of the event, Upali Arambewale from the University of Sri Jayawadanapura made a presentation on ITU Satellite Regulations. He defined ITU's mission as "ensuring rational, equitable, efficient and economical use of the radio frequency spectrum by all radiocommunication services including those using the geostationary satellite orbit or other satellite orbits and to carry out studies on radiocommunication matters". By registering satellite networks with ITU, Member States gain international recognition for their space-based frequency assignments and the ability to protect them from harmful interference.

Bandara Attanayake of Dialog TV updated the floor on the status of satellite broadcasting in Sri Lanka. After some introductory information on orbits, link-budget calculations, DVB-S and S2 comparisons and the need for ITU coordination, he related how the first satellite operator CBNsat started in 2004 but soon after was shut down because of not having a proper license. Now, Dialog TV is the satellite operator having 300,000 subscribers out of 4.7 million households in the country.

After the Workshop sessions, participants took the opportunity to pose their questions directly to the experts at the round table discussion. Finally, the programme ended with a visit to the Dialog TV Satellite Centre in Colombo.



IBC2013

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centred around a professional standard studio set, attendees have a host of the latest production technology to get their hands on
- **IBC Workflow Solutions**
dedicated to file-based technologies and provides attendees with the opportunity to track the creation management journey
- **IBC Big Screen**
providing the perfect platform for manufacturer demonstrations and ground breaking screenings
- **Future Zone**
a tantalising glimpse into the future of tomorrow's electronic media
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celebrating the personalities and the organisations best demonstrating creativity, innovation and collaboration in our industry



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Making the Most of IBC

One of the noticeable features of IBC is its size. Over the years it has grown to become one of the largest global gatherings of the world's electronic entertainment industry, and the numbers alone are impressive – 50,000 + attendees from 160 countries and more than 1,400 exhibitors attend the show, while 300 leading figures speak in over 60 compelling conference sessions.

That is why over the years IBC has evolved a number of different tools and strategies to help visitors cope with the dimensions of the show and get the experience they need out of their time in Amsterdam.



For a start, there are a wide range of passes available. These start from the currently free IBC Exhibition Pass which grants access to the whole five days of the exhibition, and extend all the way up to the IBC Gold Pass, which provides multiple benefits to delegates to the conference, including access to all of the conference sessions, reserved seating, unrivalled networking opportunities and much more. In-between there are a range of options available, including excellent value five-session Bronze Pass and even a Single Session pass.

Early bird prices, including the free Exhibition Pass, last until 21 August and you can save up to €700, so register now to make sure you don't miss out at www.ibc.org/register

On the showfloor, care has been taken to allow people to maximise their time at the RAI and the exhibition is carefully themed into fourteen halls – if you're interested



in post production equipment, for instance, Hall 7 is where you want to head to and there are a range of specialist areas that focus attention on particular sectors of the industry. The IBC Connected World looks at the impact of internet delivery and the new connectivity, both in and out of the home; IBC Workflow Solutions examines file-based production methodologies; IBC Production Insight is the place to test drive the latest camera kit; the IBC Big Screen leverages the enormous cinema in the heart of the RAI to showcase the latest tools and techniques; and the Future Zone is where many of the technologies that will disrupt the industry are first glimpsed.

Many of the people that will help shape the industry's future are now introduced to IBC via the innovative Rising Stars programme. A one and a half day event packed full of exclusive sessions, IBC Rising Stars is aimed at students, graduates and young professionals who wish to enter and progress within the electronic media and entertainment industry. It is free to attend and gives them the chance to meet top industry experts across a series of specially staged sessions and events during the show. It gives them the exclusive opportunity to hear inspirational stories from young professionals who have made it within the industry, and it provides the insider information they need to succeed themselves, everything from insight on the latest technology trends to advice on constructing that killer CV.

At the other end of the spectrum is the IBC Leaders' Summit, an exclusive invitation-only event, designed specifically for the most influential and visionary people at the top of the electronic media and entertainment industry. This year's theme is 'The Second Screen, Big Data & Regulation: Unlocking the Potential and Harnessing the Power', and an intensive one-day programme will seek to examine the subjects in forensic detail as these disruptive technologies further embed themselves into the industry's framework.

So, whether you're a captain of industry or just starting out, whether you can attend all six days of the conference or just a single session, whether you want to investigate the latest camera gear or are interested in apps...Whatever your needs IBC has something for you.



Make sure you are part of it, register today at
www.ibc.org/registration

BroadcastAsia2013

Exhibition and International Conference

The four-day BroadcastAsia 2013 event was held from 18 to 21 June at the Marina Bay Sands in Singapore. This prominent regional event was also combined with the CommunicAsia and EnterpriseIT events making it one of the largest broadcast and ICT expos in the region. The event showcases the latest developments and trends across the broadcast, ICT, Satellite, digital multimedia and entertainment technology industries.

The exhibition this year showcased and presented revolutionary products and technologies from international manufacturers and included 12 international group pavilions. BroadcastAsia2013 featured the latest updates across the entire broadcasting and film ecosystem, from acquisition, production, and management systems to post production, distribution and delivery. The show covered a multitude of technologies, including:

- Connected Digital/SmartTV
- Over-the-Top (OTT)
- Multi-Screen Streaming
- Digital TV and Radio Standards
- Digital Media Asset Management and Storage



International Conference Highlights

This year the international conference was organised with two to three parallel tracks running every day. The first day sessions began with a forum with the topic, “Captains of Industry Dialogue”, where five prominent experts within the industry shared their views on the outlook of the industry.

The sessions on the first day addressed two specific tracks, “Embracing OTT Opportunities in Asia”, which presented on the OTT TV technologies, challenges and business decision to license and launch content in Asia’s emerging and developed markets, and identifying new revenue streams to exploit Asia’s changing broadcasting landscape. The

second track on “Next-Gen Innovation and Technology in TV” looked at the next-gen services such as connected TV, hybrid technologies and Ultra High-Definition TV.



The second day had three tracks running in parallel, namely “OTT: The New Content Experience”, “PAY TV - The Next Key to Future Prosperity” and “DVB-T2 Technology and Implementation”. The track on OTT addressed the content and its delivery to multiple screens, the second screen experience, business models and case studies. On the Pay TV track the presentations looked at new strategies in pay TV, specifically in the Asian markets, approach to multiple screens and next-gen services. The DVB-T2 technology session presented on the technology, advanced features, its implementation and sharing experiences with case studies. It also looked at the new innovations like the DVB-T2 lite for mobiles.

The third day of the conference focused on the theme, “Multi-Platform Content” which included topics like; Meeting the Challenges of Distributing and Monetising Content in a Multi-Platform Universe; the evolution of connected TV platform; TV everywhere has arrive in Asia – What has worked and what is next; Multi-Screen Ecosystems to Enable the Monetisation of TV Services; and Harnessing the Second Screen Apps Market. The session also included a panel discussion on the topic, “How are the Industry Players Adapting to Multi-Platform Delivery,” which discussed effective business models and solutions to media management.

The technology sessions on the third day focused on file based workflows and broadcast infrastructure. The track themed, “File-Based Workflow and Cloud Broadcasting,” looked at advancements in file-based workflow applications, next-generation workflows, integrating and advantages of cloud based technologies in the production environment and case studies sharing real world experiences. The sessions also included a panel discussion looking at modern solutions in this fast changing landscape. The second technology track looked at the theme, “Broadcast Infrastructure and Transmission,” which looked at new infrastructure requirements for rolling out of advanced technologies such as 4k, HEVC and others.

The last day of the conference was a half-day session entitled, “OTT Workshop: Emerging VS Developed Regions”. The workshop presentations looked at how the established players ‘did it’ and what emerging players could learn from them. It included an extended session on the different strategies that can be used to engage viewers on four screens including hybrid, OTT and smart apps. The workshop closed with an OTT Technology Demo presented by Conax.



In addition to the international conference there were additional sessions organised by system proponents and other industry players. One such session was, “Digital Radio: Relevant, Regulation, Revenue and technology,” organised by the WorldDMB Forum. The half day workshop looked at examples of digital radio rollout, its enhancements and monetising opportunities. It also looked at case studies from Thailand and Australia, as well as a look at hybrid radio and ways to make radio stay more relevant when audiences have other digital platforms to choose from.

Another such session was on “DVB-S2 Extensions”, presented by Newtec which included a panel discussion on the topic,



“Are You Ready for a New DVB Standard.” The session looked at what the so called DVB-S2 Extensions are all about, the results of real world tests and when and how broadcasters and other industry players can migrate to this more efficient platform. The panel included experts from Intelsat, Measat, Newtec, SES and Speedcast who provided their views as well as answering questions from the floor.

The BroadcastAsia event was joined by more than 2,000 companies from 56 countries/regions, and over 51,000 delegates from around the world attended the exhibition, conference and meetings. Over 350 industry experts came together at the international conference sessions to share their knowledge, experience and expertise in various disciplines of the broadcast chain. The event provided an excellent networking opportunity and environment for the delegates.



News

from the ABU Region

Asia-Pacific

ABU Members Urged to Enter co-production Scheme

The Asia-Pacific Broadcasting Union (ABU) has called on its members to take part in a new co-production scheme to develop greater cooperation in the Asia-Pacific region. The 1Asia Project, based on the cooperation between the ABU and the Ministry of Internal Affairs and Communication in Japan, encourages co-production and collaboration between Asian broadcasters and producers.

The joint project aims to generate sustainable relationships between broadcasters, promote cross-border transactions to increase sharing of Asian content, create opportunities for capacity building between countries with varying levels of know-how, and forge business networks within Asia in the spirit of building a single content market.

It has also been described as an opportunity to discover a variety of resources in the different regions of Japan by working in collaboration with local companies and municipalities.

(APB News)

Channel NewsAsia Renews on AsiaSat 3S

Asia's leading satellite operator, Asia Satellite Telecommunications Company Limited (AsiaSat) announced that regional broadcaster, Channel NewsAsia, is continuing its distribution carriage on AsiaSat 3S.

Channel NewsAsia offers news programming and content with unique Asian perspectives. The channel is widely available to all Asian cable and satellite DTH networks, terrestrial television stations, hotel networks and private viewers under AsiaSat 3S's region-wide C-band footprint, which reaches more than 50 countries. From January 2013, Channel NewsAsia will start broadcasting "live" news 24 hours a day, as part of its plans to serve a wider international audience.

(C+T Mag)

Australia

Australia's Foxtel Go Pay TV App Drives Multiscreen

Foxtel Go, a new portable app by Australian pay TV provider Foxtel, is running the IBMS solution by Pilat Media to drive its nonlinear and multiscreen service offerings. Foxtel is also employing multiple Elemental processing systems to process and deliver over 50 channels for Foxtel Go OTT and TV Everywhere services.

Foxtel launched Foxtel Go last November following the success of its 2012 London Games app, which gave subscribers access from tablet and smartphone devices to eight HD channels providing live coverage of the events. The Foxtel Go service now features more than 50 live channels with many channels providing catch-up programming that can also be viewed on demand.

(IBE News)

SBS Australia Revisits Outsourced Broadcasting

SBS Australia is re-examining the outsourcing of its broadcast services. Some six years after it signed a subsequently scrapped agreement in 2007 for delivery of channel play-out and other outsourced services, the multi-cultural broadcaster has issued an Expression of Interest on its web site for "Provision of Outsourced Services for Television Broadcast Systems".

It is understood that through this consultation exercise, the broadcaster is seeking to determine whether the Australian market has matured sufficiently enough since its dealings last time to provide such services in a reliable manner.

(C+T Mag)

Cambodia

ONE TV Launches Local Cambodian Channels

Cambodian DVB-T pay operator One TV, has new channel packaging, with more Asian channels offered. Intending to build its business as a national operator, One TV says it is catering to the content-preferences of the Cambodian population who prefer local content in the Khmer language. In addition, One TV also now offers a number of Vietnamese, Korean and Thai TV channels. The Cambodian digital TV operator now provides its viewers with over 60 existing local and international channels.

(C+T Mag)

China

China and South Korea Have Signed a Tentative Film Co-production Agreement

China and South Korea have signed a tentative film co-production agreement and a formal co-production treaty is expected to be signed during 2013. If the treaty goes through, co-production projects will enjoy free market access regardless of the Chinese foreign film quota and also enjoy tax benefits from both countries. South Korea's Ministry of Culture, Sports and Tourism (MCST) expects the co-production treaty to create growth not only in film co-productions but

also in film VFX and employment of film crews. The Korean Film Council (KOFIC) also opened a 'Korean Film Business Centre' in Beijing in 2012 to support co-production and backed other collaboration with the Chinese film industry.

In 2012, three Korean films (including co-productions) reached Chinese cinemas with a market share of around 0.8 per cent. 19 Chinese titles were released in Korea with a market share of 0.5 per cent, up from 0.3 per cent in 2011, but this dropped from 1.5 per cent in 2010 and 2.1 per cent in 2009. The co-production agreement is expected to boost the market share of both in the future. To date, China has signed co-production treaties with Canada, Italy, Australia, France, New Zealand, Belgium and Singapore and is also in talks with Spain and Brazil.

(Screen Digest)

Fiji

Fiji TV Builds Multi-channel Playout facility

The implementation of a new multi-channel playout facility saw Fiji TV rolling out a Harris Broadcast solution designed and supported by Gencom Technology. Fiji TV is one of the leading broadcasters in Fiji and the Pacific region, handling the playout operation for 25 channels and also serves SKY Pacific, the Pacific's premium direct-to-home (DTH) satellite pay TV service.

(IBE News)

Hong Kong

HK's CABLE TV Announces New HD Entertainment Channels

Hong Kong-based pay TV operator, CABLE TV, has announced a new line-up and programming plans for its flagship Entertainment Platform this northern summer. Starting June, CABLE TV's Entertainment Platform will launch two new flagship channels in high definition. HD FAN, will be an integrated channel providing local entertainment productions, the most popular drama shows in Asia and instant coverage of latest entertainment news and hot topics. HD CABLE Drama will be an all-drama channel carrying top drama series from around the world 24 hours a day.

(C+T Mag)

India

India Adds Over 10 Million Satellite TV Subscribers in 2012

The Telecom Regulatory Authority of India (TRAI) has released "The Indian Telecom Services Performance Indicators" for the Quarter ending December 2012. This Report provides a broad perspective of the Telecom Services and presents the key parameters and growth trends for the Telecom Services as well as Cable TV, DTH & Radio Broadcasting services in India for the period covering October to December 2012, and is compiled on the basis of information furnished by the Service Providers.

Besides the free DTH service of Doordarshan, there are 6

private DTH licensees, offering their services to the DTH subscribers. As of Dec 2012, their reported registered subscriber base was 54.52 million. The Government has notified for implementation of Digital Addressable Cable TV Systems (DAS) in India, in four phases, starting from November, 2012 and completing by December 2014.

(Digital TV News)

Indonesia

Indonesia's Biznet Networks Launches Cable TV Service

Indonesian telecommunications provider Biznet Networks has deployed a Harmonic solution to power its new Broadband Internet + Cable TV service called max3. Relying on a fully integrated IP-based headend that features scalable video and edge processing solutions, Biznet Networks hopes to cost-effectively deliver high-quality video content and an increased channel line-up to subscribers in Jakarta and to viewers in Bandung and Bali in the near future.

The new video headend is powered by a range of Harmonic video processing solutions and perform a wide range of tasks, including SD/HD, MPEG-2/MPEG-4 video and audio transcoding, encoding, and decoding; ASI to IP multiplexing; and scrambling from compact platforms, maximizing operational efficiencies while optimizing bandwidth allocation for the max3 service.

(IBE News)

Japan

NHK Promotes 8K Camera; Trial Broadcasts to Begin in 2016

Just when you thought you were getting comfortable with Ultra HD/4K, NHK, the Japanese broadcaster, is moving fast to implement 8K broadcasting, with OTA trials to begin in Japan in 2016. The camera was shown at the NAB Show in prototype form.

At its recent Open House, NHK showed the new 8K AH-4800 camera head, co-developed with Tokyo-based AstroDesign, which is much lighter and more compact than previous models. It has a 2.5in, 33-megapixel "single plate" CMOS image sensor and processing circuitry in a 125mm (W) x 125mm (H) x 150mm (D) housing (about 5in square). Total weight, with lens, is said to be about 2kg, and it captures images at up to 60fps.

Japanese news reports said that the image sensor can be used with standard (high-quality) PL-style lenses made for digital cinematography. The monitor has 4K resolution, but can process 8K signals. The image sensor itself can run at 120Hz, but the required signal-processing component isn't ready yet. In the prototype, the display is running at 60Hz.

Many industry professionals have said that while 8K images look stunning, it's emergence into the market so soon could make consumers who might consider purchasing a 4K TV set wait, and that's the last thing CE manufacturers want.

(Broadcast Engineering)

NHK and Mitsubishi Develop World's First HEVC Encoder for 8K Super Hi-Vision

NHK and Mitsubishi Electric Corporation have jointly developed the world's first HEVC encoder for 8K ultra HDTV "Super Hi-Vision" (SHV). SHV is the broadcasting medium of the near future. It makes viewers feel like they are really at the heart of the action, with 16 times the number of HD pixels and a 22.2 multichannel surround sound experience.

HEVC offers about double the data compression of AVC, and about four times that of the MPEG-2 standard currently employed for digital HDTV broadcasting.

The high-volume SHV images are divided into 17 horizontal rows. The parallel processing of these rows makes it possible to achieve real-time coding of SHV images. The deterioration of picture quality at the row boundaries has been lessened by having rows share data concerning the speed, direction, etc. of moving objects.

NHK and Mitsubishi Electric Corporation are pursuing research and development of real-time coding of the 120 Hz frame frequency of SHV. The HEVC encoder was displayed at the NHK Science & Technology Research Laboratories Open House 2013.

(Digital TV News)

Malaysia

Malaysia Loves its Anime

Animax, Asia's "first" channel brand specialising in Japanese animation, or anime, has delivered record gains in viewership in Malaysia from the second half of last year through to this year, culminating in the channel topping ratings of Astro's popular "Variety Pack" pay-TV channels for the past seven months. According to Animax, its full-day ratings average for this year is five times that of the next best-rated channel in the pack. For January and February this year, Animax delivered four times the average full-day ratings recorded in the first six months of last year.

Prior to that, Animax's average full-day ratings in the second half of last year grew to 2.5 times that of the first half of the year. Ratings growth has been driven by a steady increase in average viewing duration of each viewer from 21 minutes to almost two hours per day, added Animax. Another factor that Animax has attributed to its success is the switch to broadcasting of all its anime programmes in the original Japanese audio track with English subtitling.

To continue driving viewership, Animax is set to roll out a line-up of popular new and returning anime titles for the rest of this year, including Sket Dance 2, Blue Dragon, Naruto Shippuden, Little Busters and HunterXHunter Season 2.

(APB News)

Telekom Malaysia's HyppTV IPTV Service to go Nationwide

Telekom Malaysia Berhad (TM) today announced that its IPTV service – HyppTV – powered by TM high speed

broadband service, UniFi will be receiving a huge boost with the availability of the service nationwide and everywhere on multiple platforms with the introduction of its latest innovative offerings – HyppTV Over Broadband and HyppTV Everywhere.

Currently on its final testing stage, the two (2) new services will be commercially available to UniFi and Streamyx customers in Q3 this year. TM is conducting commercial trial for HyppTV Over Broadband involving its 1,000 Streamyx 8Mbps package subscribers.

HyppTV Everywhere, the first ever multi-screen offering will enable UniFi customers to watch HyppTV anywhere and anytime, true to TM's aspiration of delivering an enhanced integrated digital lifestyle to Malaysians nationwide. TM will also be making its HyppTV service available to its 4Mbps and 8Mbps Streamyx broadband customers, thus expanding the reach of the IPTV service to even greater number of viewers nationwide.

(Digital TV News)

Astro Tackles Loudness

Kuala Lumpur-based broadcaster Measat Broadcast Network System Sdn Bhd has appointed SALZBRENNER STAGETEC Media Academy as consultants to support their switch from level-based loudness management to loudness metering based on the ITU 1770 standard for their Astro Pay-TV channels. By switching to loudness metering and processing Measat aims to deliver a uniform, high-quality sound experience throughout all the Astro channels. Since 2010 Astro has been equipped with STAGETEC audio routing systems and consoles which offer native loudness metering as well as support for third-party-solutions.

A first round of training and consultancy was held in March for a week which imparted theoretical and practical knowledge to all audio staff members in all areas of the Astro campus including studio production, MCR, transmission and post-production.

(C+T Mag)

Singapore

Singapore's StarHub Deploys HTTP Live Streaming

Singapore-based communications provider StarHub has deployed Broadpeak's CDN manager and multiformat video streaming servers to power its live video services. Using Broadpeak's solutions, StarHub can deliver live television content in a variety of adaptive streaming formats, including Apple HTTP Live Streaming (HLS).

The servers streamline the delivery of video over managed or open Internet networks to a wide range of devices and the CDN Manager streamlines content delivery based on the type of service and customer location. By continuously monitoring the popularity of content based on usage patterns, it automatically pushes popular content to the edge of the servers, while long-tail content remains on the larger central library, lowering StarHub's storage use and operating expenses.

(IBE News)

Digital Broadcasting Update

Digital TV

Guatemala Adopts ISDB-T for DTT

The Government of Guatemala has announced in its official gazette that it has adopted the Japanese-Brazilian ISDB-T system as its broadcasting standard for digital terrestrial television (DTT). A cooperation agreement with Brazil will be put in place in order to support the implementation of the system.

Guatemala is the 14th country to adopt the system alongside Uruguay, Argentina, Paraguay, Chile, Bolivia, Peru, Ecuador, Venezuela, Costa Rica, the Philippines and Botswana, as well as Brazil and Japan. Honduras and El Salvador, Guatemala's neighbouring countries, have also shown interest in ISDB-T, but have not yet announced which system they will adopt. *(Digital TV News)*

Digital Switchover in Europe "Almost Complete"

22 of the 27 European member States have now completed the digital switchover, including the non-EU countries of Switzerland, Norway, Iceland and Croatia. The recommended switch-off deadline for analogue terrestrial television set by the EU was the end of 2012. According to the European Audiovisual Observatory 2013 should see the switchover to be completed in Greece, Poland and Bulgaria, followed by Hungary in 2014. Albania, Romania, Russia, Montenegro and Turkey are planning to have completed the process by 2015.

The pan-European body's Yearbook showed that DTT pay-TV platforms had been established in 21 countries at the end of 2012, with there being a total of 33 pay-DTT services available. New launches in 2012 took place in Greece and Belgium. However, the Yearbook also showed, for the first time, a drop in the number of subscriptions to pay-DTT by an overall figure of 13% in 2012.

The European Audiovisual Observatory stated that at the end of 2012 there were 465 free national and international channels, 529 pay channels and more than 1,000 local and regional channels available on DTT networks in EU member states. According to the Observatory, 2013 will see 21 new local television channels appearing on UK DTT networks with a new multiplex expected to be completed this year.

DTG

3DTV Roadmap

David Wood, Chair DVB-3DTV CM, reports on the CM-3DTV road map meeting which took place in Geneva on the 14

May. The new video compression technology, called MPEG-H/H.265/HEVC, will open many doors. They may include new 3DTV formats. No one would suggest that 3DTV has swept the world, but it can bring large audiences for particular events and movies, so it is still alive and needed. If television broadcasting, in general, moves to HEVC, so should 3DTV.

CM-3DTV is charged with preparing DVB requirements for 3DTV, and has recently been examining the future of 3DTV - the 'roadmap' for DVB-3DTV over the next ten years. And there is more on offer than more efficient compression. Research is being made across the world to realise 'glasses-free' or 'autostereoscopic' 3DTV. The principle is that a large number of views are available on the screen by virtue of a view-filtering surface, so when the head moves it sees different left and right eye images, as happens in real life. At the same time, Ultra-HD TVs with four times the detail of today's displays will be available soon.

(Constantcontact.com)

ATSC Mobile Digital TV Standard

The Advanced Television Systems Committee (ATSC) today announced approval and publication of specifications for a Mobile Emergency Alert System (M-EAS) delivered using the ATSC A/153 Mobile Digital TV standard. In the future, mobile emergency alerts delivered via TV broadcasts will make it possible for viewers to receive more than just text alerts when dangerous weather or other emergency conditions threaten public safety. The M-EAS enhancements to the A/153 standard will provide capabilities for delivering multimedia alerts (utilizing video, audio, text, and graphics) to mobile DTV-equipped cellphones, tablets, laptops, netbooks and in-car navigation systems. Mobile emergency alerting via mobile DTV requires no additional spectrum and is an additional use of existing TV transmitters and towers. It was stated that M-EAS is backwards compatible and will not affect the performance of mobile TV products already in consumer hands. Future mobile TV receivers can be designed to take full advantage of M-EAS capabilities.

(ATSC.org)

Is DVB-T Last Century?

The EBU has just released a paper entitled "DTT Quo Vadis" focusing on the future prospects for classical terrestrial broadcasting in Germany. It predicts the possible termination of terrestrial broadcasting by the end of the decade. Germany is well-served by satellite and cable services, with the result that DVB-T viewing averages only 12.5 percent of viewing, falling as low as 3 percent in one state. The public broadcasters use DVB-T, but the commercial

broadcasters shun the service, as the low viewing figures make it a poor business proposition.

Some countries are moving from DVB-T to T2 to enable the carriage of HDTV over terrestrial RF channels. With free-to-view HD available via satellite in Germany, DVB-T is used at higher field strength than in many countries to permit viewing on portable receivers. So, if Germany moved to DVB-T2, it would be to support mobile receivers, rather than terrestrial HD broadcasting to fixed receivers with roof-top antennas.

German stations are now questioning the long-term viability of DVB-T, and are looking to new technologies like Dynamic Broadcasting, which allows interworking between broadband wireless, IP networks and broadcast. It also envisages STBs being preloaded with non-live programming, typically overnight, to make best use of bandwidth. Dynamic Broadcasting does not use fixed channel allocations, but adapts depending on the type of content and viewer demand. The mobile and portable receivers will be served via LTE and LTE-Advanced and Wi-Fi.

Broadcast Engineering

Digital Radio

Digital Radio Growth in Switzerland

By the end of 2012, 1.15 million digital radios were in use in Swiss households, according to Swiss-based Marketing and Consulting for Digital Broadcasting Technologies.

Retailers report that over a quarter of a million DAB+ radios were sold last year alone, MCDT said, and that the range of radios on sale continues to expand; DAB+ digital radios are currently available at all price points and in a variety of designs.

Those driving in Switzerland can also listen to DAB+ in the car because auto manufacturers now increasingly offer a digital radio as an add-on. In early January 2013, the first car models outfitted with DAB+ digital radio as standard were released in the country. For those who do not currently own a car radio capable of receiving DAB+, car radios can be retrofitted for digital reception using an adapter or DAB+ aerial.

(RadioWorld)

State Funding for DRM+ Development in Norway

The Norwegian Media Authority has granted 21st Venture €25.340 (US\$33,400.65) to promote the development of DRM+, according to the Community Media Forum Europe.

The company runs Radio Metro, a local commercial radio station broadcasting in Oslo and other cities. It also has radio assets in South Africa and Botswana. Radio Metro will broadcast DRM+ over its FM frequency in Trondheim, and the project will coincide with the Annual Conference of the Norwegian Local Radio Association.

(RadioWorld)

Internet

MPEG-DASH Deployment Guidelines Issued

The DASH Industry Forum (DASH-IF), an industry body dedicated to promoting interoperable streaming of multimedia content over the Internet, has released its guidelines for deployment of the new MPEG-DASH standard, which promises to simplify the delivery of IP video. The organisation's DASH-AVC/264 implementation guidelines recommend using a subset of the MPEG-DASH standard, with specific video and audio codecs endorsed to promote interoperability between industry deployments.

The DASH-AVC/264 Implementation Guidelines offer companies a roadmap for developing interoperable products and services through real-world use cases from the multimedia streaming market. The new guidelines were created by the 67 members of DASH-IF and are also aligned with initiatives from other industry standards bodies and consortia such as HbbTV, DECE, DTG, HD-Forum, OIPF, EBU and DLNA. Future guideline updates are expected to address advanced services and applications, including multichannel audio and HEVC support, and will be made available later this year.

(IPTV-News)

YouView Heads Towards 400,000 Homes

YouView announced that it is on its way to reaching 400,000 homes across the UK. On demand viewing statistics released for the first also revealed that over 2.2 million videos get played on demand each week, with around 60% of YouView consumers viewing VOD programmes every week with an average of 7 programmes a week being watched. YouView recently announced an Android version of its YouView app to be released in the next few weeks as well as the addition of Internet Channels to its services in the summer.

(www.dtg.org.uk)

A Path to Better Delivery

As consumers increasingly view live and VOD television on a broader range of IP-connected devices, broadcasters are struggling to deliver these high-bandwidth services. However, a new video compression standard called High Efficiency Video Coding (HEVC) promises to improve upon the current compression standard H.264, also known as MPEG-4 AVC, easing broadcasters' pain. Using HEVC, broadcasters can reduce the data rate needed for high-quality video coding by approximately 50 percent, enabling them to deploy higher quality OTT video services using the same amount of bandwidth, or half the bandwidth at the same quality. In addition to improving OTT delivery, HEVC also has the potential to support a broad range of current and future applications, including 4K x 2K Ultra HD Television (UHDTV), making it an exciting technology that pushes the consumer experience to the next level.

(Broadcast Engineering)

Miscellany

Vietnam's Pay-TV Market Vastly Improved

Following a period of confusion after new pay-TV regulations came into force in Vietnam in May 2013, the Cable & Satellite Broadcasting Association of Asia (CASBAA) has described the country's pay-TV market as "vastly improved", with most international TV channels now restored.

It was stated that after the initial period of confusion, the Vietnamese government made clear that it did not want to see foreign TV channels (and specifically not the international news channels) dropped from the country's pay-TV systems. This positive and welcome intervention from the top levels of the government has made a real difference.

Vietnam currently has a small but rapidly-growing pay-TV industry, with around five million subscribers and household penetration at 26% by the end of 2012, according to research by Informa Telecoms & Media (publisher of IP&TV News). It is currently predicted that a combination of strong economic growth, the launch of new platforms and ongoing expansion of IPTV will provide favourable conditions for Vietnam's pay-TV sector to grow in the coming years.

(IPTV-News)

India Adds Over 10 Million Satellite TV Subscribers in 2012

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Besides the free DTH service of Doordarshan, there are 6 private DTH licensees, offering their services to the DTH subscribers. As of Dec 2012, their reported registered subscriber base was 54.52 million. The Government has notified for implementation of Digital Addressable Cable TV Systems (DAS) in India, in four phases, starting from November, 2012 and completing by December 2014.

(Digital TV News)

New Wi-Fi Standard to Support Wireless Ultra HD

The Wi-Fi industry took an important step last week laying the groundwork that one day will lead to the technology necessary for consumers to deliver wireless home coverage that will support delivery of Ultra HD and 4K video as well as other demanding applications. The Wi-Fi Alliance announced June 19 the launch of its Wi-Fi CERTIFIED ac certification program, which will support development of home wireless networking operating in the 5GHz band, where devices can make use of increased bandwidth to achieve a higher data rate.

The certification program is based on technology defined in the IEEE 802.11ac standard. Benefits of Wi-Fi CERTIFIED ac include higher data rates, greater capacity and lower latency. According to the alliance, networks based on Wi-Fi CERTIFIED ac can deliver data rates up to twice of those available with Wi-Fi CERTIFIED networks. This high data rate means wireless networks can stream multiple HD-quality video to several devices. New Wi-Fi CERTIFIED ac networks also will allow more devices to be connected to the network without degrading performance.

The alliance says it expects most Wi-Fi CERTIFIED ac products be dual-band, operating in both the 2.4GHz and 5GHz bands, and to support Wi-Fi CERTIFIED n in the 2.4GHz frequency band. Dual-band networks double capacity, because devices can use the less crowded 5GHz band for high-performance applications and the 2.4 GHz band for basic needs.

Broadcast Engineering

NRSC Adopts New Guidelines

The National Radio Systems Committee (NRSC), jointly sponsored by the Consumer Electronics Association (CEA) and the National Association of Broadcasters (NAB), adopted two new NRSC Guideline documents at Subcommittee meetings held in conjunction with the 2013 NAB Show. NRSC Guidelines are informative documents developed to assist radio broadcasters, broadcast equipment manufacturers, and receiver manufacturers in the effective and efficient operation and implementation of local AM and FM radio systems.

The first new Guideline, NRSC-G101, AM Modulation-Dependent Carrier Level (MDCL) Usage Guideline, was adopted by the AM and FM Analog Broadcasting (AFAB) Subcommittee. This document provides information on modulation-dependent carrier level (MDCL) technologies available for use by AM broadcasters as a means to reduce electrical power consumption of their facilities which, when used carefully, have little or no impact on the audio quality of AM transmissions.

Also adopted at the Show was NRSC-G301, Creation and Distribution Practices for Audio Program Metadata Guideline, adopted by the Radio Broadcasting Data System (RBDS) Subcommittee. NRSC-G301 sets forth recommendations for creation, packaging, distribution and interpretation of metadata intended for delivery to listeners alongside radio programming, covering methods for managing metadata created both by local broadcasters and networks, independent producers, centralized production facilities or other program sources outside the broadcast station.

These documents will be available free-of-charge on the NRSC's website (www.NRSCstandards.org). Additional information about the NRSC, including information on becoming a member, is also available on the website.

(www.nab.org)

Equipment Trends

Cameras and Accessories

New Ki Pro Quad Shipping

Ki Pro Quad, a new solid-state portable video recorder enabling true 4K camera-to-editorial workflows, has been introduced by AJA Video Systems. The device enables a breakthrough 4K/Quad HD/2K/HD workflow with the efficiencies of Apple ProRes and the flexibility of RAW data in a compact, solid state recording and playback package that easily mounts directly onto a variety of cameras supporting workflow needs today and into the future.



Ki Pro Quad has many features that enable new ways of working for creative professionals and delivers as; Breakthrough 4K Workflows Ki Pro Quad serves as a central gathering point for the main needs of 4K production; bring camera signals in and simultaneously create edit-friendly 4K ProRes files, output to 4K and HD monitors and record RAW data directly to a Thunderbolt-enabled computer/storage system. 4K and Quad HD Support Help ease the transition to 4K with a recorder that creates efficient file sizes while still retaining pristine quality. More than 4K and Quad HD Support for 4:2:2 and 4:4:4 recording even at HD and 2K resolutions, and real time scaling from 4K/Quad HD to 2K/HD. HDMI output allows connection to HD consumer monitors. HD-SDI output provides professional connectivity to high-end monitors.

(www.aja.com)

Third-Generation Varicam with Native 1080P



The third-generation model of Varicam® that improves upon the camera's signature features – off-speed shooting and film-like image production – was announced by Panasonic. This new camera utilizes three advanced, full 1920 x 1080p

wide dynamic range MOS imagers for native 1080/60p recording/operation. The camcorder boasts a true RGB imager/prism system that provides full resolution colour. With an EFP-style body, the VariCam's 2/3" B4 lens mount enables use of native format prime lenses and servo zooms, eliminating the expensive and cumbersome workarounds required when using such optics on larger formats.

Among the camcorder's production features are real-time high frame rate, off-speed recording to 120fps in full 1080p (in AVC-Intra Class100), a wide dynamic range and 24-bit LPCM audio. A powerful Colour Management System provides an exceptional colour gamut, and the new Log functionality provides powerful creative control over image contrast. The third-generation VariCam will have both standard P2 and Panasonic's new microP2 slots and will feature a range of high-quality recording formats including AVC-Intra Class100 (up to 120p), AVC-Intra Class200 (up to 60p) and AVC-Intra Class4:4:4 (up to 30p).

(www.panasonic.com)

New XDCAM Camcorders and Wireless Adapter



The new PMW-300 XDCAM camcorder from Sony is able to record 50Mbps HD material in MPEG HD422, meeting broadcast standards around the world. It is equipped with 1/2-inch Exmor™ Full-HD 3CMOS sensors capable of delivering images even in low-light conditions. The PMW-300 is appropriate for broadcast producers and corporate event camera operators who require a flexible semi-shoulder camcorder that can easily be adapted to suit a wide range of production environments.



The PMW-400 is a shoulder-mount camcorder that comes equipped with 2/3-inch Exmor™ Full HD 3CMOS sensors. It is capable of capturing images with high sensitivity and low noise due to the quality CMOS sensors and 3 Dimensional

Noise Reducer (3DNR) technology. The camera supports the XDCAM HD422 format and offers future XAVC support for HD. Sony has also developed a wireless adapter that can be directly connected to the PMW-400 to enable proxy files generated on the microSD to be transmitted via 3G/4G/LTE/Wi-Fi.

(*Pro.sony-asia.com*)

Live Ultra-motion Solution



THE I-MOVIX X10 is the industry's first live ultra-motion solution to deliver a continuous real time output of up to 250 fps at native HD resolution and image quality. Giving production teams continuous access to instant replays at up to ten times the normal frame rate, X10 outstrips the performance of existing continuous super-slow motion systems, which are restricted to three times slower than real time, or 75 fps. Developed in partnership with EVS, the X10 system is used with an EVS XT3 production server under LSM control and provides a familiar user interface and controls that any broadcast crew can use immediately, without any special training.

For sports productions requiring higher frame rate levels, the X10+ system can also operate on an extreme slow motion mode at frame rates up to 2,600 fps in 1080i50 or up to 5,600 fps in 720p60 (100 times slower than live action) with instant replay, making this new I-MOVIX solution the first fully integrated ultra-slow-motion system for live HD broadcast production.

Content + Technology Asia

New Production Camera 4K



Blackmagic Production Camera 4K, announced by Blackmagic Design is a new high resolution 4K digital film camera with an innovative large Super 35 size sensor with professional global shutter, combined with precision EF mount optics and high quality Apple ProRes 422 (HQ) file. The latest high end televisions and video projectors support Ultra HD, which is four times the resolution of regular HD video. The Camera shoots to high quality compressed CinemaDNG RAW and ProRes 422 (HQ) files in 4K, giving customers a complete solution to shoot the most amazing high resolution music videos, episodic television production, television commercials, sports, documentaries, news stories, interviews and feature films. Blackmagic Production Camera

4K has been designed with standard connections and an internal battery packed inside a machined aluminium design. A high resolution LCD display shows settings such as shutter speed, colour temperature, aperture and timecode in an easy to read status strip. The built in capacitive touchscreen offers direct access to menus with a touch of the finger and allows changing settings such as recording format, shutter angle and more. The touchscreen also allows users to enter important metadata that is compatible with popular video editing software.

(*www.blackmagicdesign.com*)

Two New Luminaires Now Shipping

Two new Fresnel luminaires in Martin Professional's MAC Viper Family of moving heads are now shipping. The MAC Viper Wash™ and MAC Viper Wash DX™ with internal framing are full-range wash luminaires using the same 1000 W HID source. The Wash DX version houses a unique internal framing system that enables designers to shape and control light projection onto stages, performers, scenery, scrims or any set element.



Both luminaires house a CMY colour mixing system capable of producing a palette of vibrant colours including true reds, rich ambers, primary green and deep blues with colour stability across the entire beam. A linear CTO gives daylight to tungsten CCT control and expansion of the CMY palette. The Fresnel beam can be further manipulated using a combined dimmer/shutter system with intensity effects for instant blackout or smooth fades all the way to blackout. Diverse strobe effects are also possible. Additional effects are possible in the Wash DX version from a fast and tight iris with adjustable dynamic effects.

(*www.martin.com*)

Robotic Camera Teleprompter



The RoboPrompter was designed for today's robotic cameras and encloses the robotic camera for unhindered camera movement while providing easy access to camera controls. The 22" 16:9 LED LCD offers VGA, DVI, HDMI inputs with optional SDI. The RoboPrompter's wide mirror frame allows wide panning of the camera for both standard teleprompting use as well as PowerPoint prompting applications and telepresence using Skype or VOIP. It also provides an eyeline

from presenter to remote viewer. The device works with virtually all robotic cameras with 24" glass and 22" LED 16:9 LCD with VGA, DVI HDMI inputs.

(www.markertek.com)

PRO-PANEL™ LED Fixture



The first two models of professional Solid State LED soft lights for video broadcasting, photography and cinematography have been introduced by USHIO. PRO-Panel LED fixtures bring all the benefits of LED lighting such as cool operation, long life, and energy savings, plus high output, flicker free operation to any studio application. It is available in 2'x2' and 1'x2' panels at 2700K to 6500K with optional accessories such as dimming and colour temperature controller, 4-leaf barn door, honey comb louver and gel frame holder.

(www.ushio.com)

4K Ultra HD Monitor

New PQ321 4K Ultra HD Monitor, which spans 31.5 inches in measurement has been revealed by Asus. With its resolution of 3840 x 2160 pixels and aspect ratio of 16:9, the monitor promises to have four times the resolution of a 1920 x 1080 Full HD display. The monitor has 140 pixels per inch, which is lower than the iPad's 264 pixels per inch. According to the manufacturer, the LED-backlit monitor is made with Indium Gallium Zinc Oxide (IGZO) instead of amorphous silicone. IGZO allows the monitor to have smaller pixels, and thus, clearer images.

It also supports 1.07 billion colours, in 10-bit RGB deep colour, and has a viewing angle of 176 degrees. Furthermore, the monitor has 350 cd/m2 brightness, 8ms (gtg) response time, and adjustments for gamma and colour temperature.

Production Equipment

ATEM Production Studio 4K

ATEM Production Studio 4K, announced by Blackmagic Design, is the world's first Ultra HD 4K production switcher with support for Ultra HD live production with 6G-SDI and HDMI 4K technology. The new ATEM Production Studio 4K lets customers connect up to 8 SD, HD or Ultra HD 4K video cameras, disk recorders and computers for live production, including all the features expected from a professional switcher; chroma key, transitions, media pool, downstream keyers, audio mixer, multi view and the world's first 6G-SDI and HDMI 4K video connections.



Ultra HD 4K is four times the resolution of regular high definition video for a massive 3840 x 2160 frame size. The new 6G-SDI and HDMI 4K video connections effortlessly handle Ultra HD 4K and customers can connect all cameras using a single cable. Even when operating in Ultra HD 4K every input includes a frame synchronizer allowing the use of non genlock sources such as computers. There is also a high definition down converted HD-SDI program output for when the switcher is operating in Ultra HD formats, but a regular HD program feed is required. ATEM Production Studio 4K features built in multi view monitoring so customers can view all sources on a single SDI monitor or HDMI TV; multi view includes independent views for program, preview and 8 switcher sources.

(www.blackmagicdesign.com)

Kahuna 360 Multi-format Switcher



The Kahuna 360 multi-format switcher with the FormatFusion3 technology, can accept incoming 4K UHDTV feeds, mix them with 1080p and output as either 4K UHDTV or 2.080p, at no additional cost - helping broadcast and media organisations to adopt these new workflows. New features to ICE further extend Snell's channel-in-a-box by allowing up to four channels of HD per unit depending on the channel configuration. ICE now includes integrated 3D and 2D graphics, CG functionality with timeline editing control, and the ability to populate fields from Morpheus automation schedule events or external data sources. Complementing 10E's HD and SD simulcast capabilities is the addition of a delay service, which provides the ability to record the output of a channel for delayed playout services. ICE also boasts newly enhanced audio processing and Panoplay multi-system, multi-site redundancy.

Content + Technology Asia

New Receiver/Decoders

The new MRD 5800 receiver/decoder, the MRD 4400 receiver/decoder and TXS 8600 transcoder have been announced by Sencore. MRD 5800 receiver/decoder supports the high quality contribution video feeds and provides H.264, MPEG-2, 4:2:2, 4:2:0, 10-bit and 8-bit decoding with automatic detection and configuration, offering up to eight P1 Ds of audio decoding to deal with the multi-channel multi-lingual environment of Live-event coverage.

The new MRD 4400 is a cost-effective SD decoder capable of being upgraded to HD via a software license. It supports decoding of H.264 and MPEG-2 video to broadcast-quality outputs via SDI and composite interfaces. With up to four audio services, distributors can meet upcoming descriptive video requirements while still supporting surround or alternate language services.

And the TXS 8600, which offers high-density, multi-profile encoding and transcoding for real-time adaptive bit rate video-streaming, supports all the popular codecs, containers, and adaptive bit rate protocols needed to move content to any display device.

Content + Technology Asia

Live Content Producer



The Anycast Touch AWS-750 Live Content Producer is a powerful content creation tool for live events, education, houses of worship and corporate seminars. With an all-in-one style featuring a double touch-screen, Anycast Touch enables intuitive operation and eliminates the cumbersome setup and signal adjustment process typically required when connecting various devices. It also features a camera remote control capability – allowing operators to easily control one or more compatible pan/tilt/zoom cameras at remote locations.

(Pro.sony-asia.com)

Optical Disc Archive 10-Slot Library



A new ODS-L10 compact robotic library has been launched by Sony, specifically designed for small to medium scale production systems where media assets are managed by multiple users. High reliability is achieved with incredibly durable optical discs, and it is as easy to use as conventional external storage devices. Also, it employs removable media and users can archive rarely accessed data on shelves.

With all these features, this mini robotic library makes shelf-based archive management easier.

(Pro.sony-asia.com)

Audio Equipment

New Audio Console



A new software update for Vi2, 4 and 6 consoles has been announced by HARMAN's Soundcraft. The result of wide-ranging market feedback, Version 4.8 software contains a number of new features, with stage monitor applications in particular set to benefit most from the update. Vi1 users also benefit from some of the new features, using the same update file, downloadable free of charge from the Soundcraft website (DSP card upgrade may be required). Another new feature is the upgrade of the bussing system on Vi2, 4 and 6 to allow all 32 of the console's mix busses to work in stereo mode when required to allow use as in-ear mixes. This doubles the stereo mix capability of the Vi2, 4 and 6 consoles (the number of mono mixes remains at 32) and puts it into a market-leading position in bussing capability.

In order to benefit from the new audio features, Vi2, 4 and 6 consoles must have at least 3 DSP cards fitted to the Local Rack. Consoles with only 2 DSP cards fitted will require the purchase of a third DSP card in order to benefit from the new audio features and in this case will need to choose using an 'Expansion Mode' switch between 96 inputs and the old bussing system, or 64 inputs with the new bussing system. In order to have both 96 inputs and the new audio features a 4th DSP card will need to be purchased.

(www.soundcraft.com)

High-end RF Condenser Microphone



The MKH 8090 is a high-end RF condenser microphone with a wide cardioid pick-up pattern. It is appropriate when less acoustic impression of space is demanded. As a support microphone it excels in capturing larger groups of instruments. The microphone operates on the RF principle

that has been used by Sennheiser for more than 50 years. Among the many advantages of this principle are an extremely low inherent self-noise, the capability to handle high sound pressure levels without distortion, and a high resistance to adverse climatic conditions. The device has a wide cardioid pick-up pattern, wide frequency response 30 to 50,000 Hz with the MZD 8000 digital module and is weather-proof due to high-frequency circuitry.

(en-us.sennheiser.com)

New High-end Studio Headphones



Two new sets of headphones, including the “top-of-the-line” K712 PRO have been announced by AKG. Hand-crafted in Austria, the K712 PROs are reference, open, over-ear headphones intended for precise listening, mixing and mastering. The over-ear design offers extra comfort for fatigue-free use. Their powerful sound is the result of a 3dB low-end boost. The company has also begun shipping the new K612 PRO models – open, over-ear headphones designed to deliver natural sound imaging for professional monitoring. Advanced open technology allows for long working sessions and a full, spacious sound. They also come equipped with company’s patented Varimotion diaphragm technology.

(www.audioprointernational.com)

Handheld Recorder Line-up



The new H6 model is the first recorder of its kind with an interchangeable microphone system. Zoom has improved its handheld recorder offering with the versatile H6 model that can record up to four channels of audio simultaneously, or up to six with the optional expansion module. The basic unit is supplied with the XY and MS (mid-side) microphones, which can be swapped around for maximum flexibility. An XLR/TRS input expander (offering an extra pair of XLR inputs) and a shotgun mic will also be available as accessories. An optional Hot Shoe mount allows the user to attach the device to a DSLR video camera, and the unit can also be used as a six-in/two-out USB audio interface.

(www.audioprointernational.com)

Miscelanny

Wireless HD Extender

The ST121WHD Wireless HD Video Extender Kit includes both a WHDI transmitter and WHDI receiver, enabling you to wirelessly send a full HD (1080p) video signal, as well as audio and IR, from a high-definition signal source to a remote HD display or projector located up to 30m (100ft) away. The device is a bundled kit, which provides both local and remote units, and an IR remote control, delivering a complete, end-to-end alternative for a single source-to-display digital signage connection, delivering full High-Definition video, as well as audio and Infrared (IR), eliminating the need for an expensive cable infrastructure to provide a wireless solution for settings where cabling may be undesirable, (e.g. in the middle of a room, boardroom, etc.) or difficult to install.



This versatile WHDI transmitter/receiver kit ensures that even the latest devices will be able to pass a signal, with support for full 1080p resolutions and the accompanying digital audio. Plus, the kit enables you to control your source device remotely, using the IR extender for a complete HD extension solution.

(www.startech.com)

Portable Recorder/Player/Monitor

The Ronin recorder, player and monitor is a 1/2 RU rack-mountable smart solution for professionals working in both fixed-facility and on-location video production, captures pristine 10-bit 4:2:2 video and audio direct from any camera with HD/SD-SDI output. An Atomos Connect H2S and/or S2H can be added to the device for HDMI capability. Continuous Power on the device allows you to unplug the depleted battery and replace it with a fully charged one without interrupting recording. From an intuitive touchscreen, it captures to Apple ProRes or Avid DNxHD and allows professional monitoring and edit review on the fly. Key features of the AtomOS operating system include record triggering via a start/stop flag or timecode, SmartMonitor focus/exposure monitoring assist (including focus peaking and false colour) and SmartLog for pre-editing (reviewing, marking and tagging) footage in real-time.

Two Ronins can be mounted side-by-side in an included custom 19" Rack Adaptor, combining dual HDD/SSD recording and dual 5" monitoring for recording and playback, for confidence and peace of mind on any production.

(www.atomos.com)

Personalities & Post



Dr Amal Punchihewa
New Director of Technology for the ABU

Dr Amal Punchihewa has been appointed as Director, ABU Technology. Dr Amal obtained his B.Sc. Engineering degree with honours, specialising in Electronics and Telecommunication, from the University of Moratuwa, Sri Lanka in 1986. He received a Master of Electronics Engineering degree, majoring in Digital Signal Processing, from the Technical University of Eindhoven, The Netherlands, in 1991 and completed a post-graduate study on business management. His PhD was on compression artefacts and development of a framework.

Dr Amal worked as the Engineer, Research & Planning at the national TV broadcaster in Sri Lanka, then as a Senior Lecturer in the Faculty of Engineering at University of Moratuwa. In 1997 he was seconded to the national TV broadcaster in Sri Lanka to serve as the head of engineering (Deputy Director General/Engineering). From 1996 to 2002, he also spearheaded the national television training institute in Sri Lanka as the CEO/Director. In 2002, he joined the Institute of Information Sciences and Technology at Massey University in New Zealand where he was supervising research and teaching students in the fields of broadcast engineering, frequency spectrum management, broadcast network design and planning, satellites in broadcasting as well as digital radio and television broadcasting.

Dr Amal is a Member of Institution of Professional Engineers New Zealand (IPENZ), a Fellow of Institution of Electrical Engineers UK & Institution of Engineers Sri Lanka and a Senior Member of Institution of Electrical Engineers (USA), a member of Computer Society of Sri Lanka and a lifelong member of Association for Advancement of Science in Sri Lanka.



Simon Fell
New Director of EBU Technology

The European Broadcasting Union (EBU) has named ITV's former director of future technologies Simon Fell as its new Director of Technology and Innovation. Fell has more than 35 years' experience in senior broadcasting technology roles and he is the current Chairman of the Technical Council at the Digital Television Group, the industry association for digital television in the UK.

EBU says that from 15 August, Fell will be responsible for steering EBU Technology & Innovation in its mission of being an indispensable partner to EBU Members, driving media innovation and integration, setting standards and defining and sharing best practices in media production and delivery. His role will also involve driving business development for the EBU.



Mr Bazhikeyev Aidyn

Bazhikeyev Aidyn, Deputy General Director of the "Management Company "Kazmedia ortalgy", LLP - Technical Director. Before joining "Kazmedia ortalgy" he worked as the Technical Department Director of the JSC "Khabar Agency" for 3 years 2009 - 2012.

In 2004-2009 he worked as the Executive Director of "Okno-TV Kazakhstan", LLP engaged in sale, supply and system integration of the professional TV and radio equipment. In 2001-2004, he worked for the JSC "Republican Television and Radio Corporation "Kazakhstan" first as the chief engineer on Kazakh Radio, then as the Deputy Technical Director. He is awarded with the diploma (in 2010) and acknowledgement (in 2011) of the President of the Republic of Kazakhstan.



Mr Virender Kumar Singla
New Engineer-in-Chief AIR

Mr Virender Kumar Singla is an astute professional with 37 years of experience in Broadcasting Services having played various roles in the Engineering Departments of All India Radio and Doordarshan in India. Currently he is the Engineer-in-Chief of All India Radio, prior to which he was the head of planning and Development Unit of AIR. He has successfully executed various Radio and TV projects during the course of his career, including Digitisation of Radio and TV, Installation of Radio/TV studios, Radio Transmitters (MW, SW and FM), TV Transmitters and various IT projects. He was deputed as the Chief Executive and Regional Head of Central Board of Film Certification Mumbai, India, for four years. He was also the faculty member of Staff Training Institute of AIR and Doordarshan, New Delhi. As Head

of IT division he was instrumental in the implementation of Webcasting and Podcasting of Radio Programs on 21 Channels. For his contributions in Broadcasting, he was recently awarded Prof. S N Mitra Memorial Award (2012) by The Institution of Electronics and Telecommunication Engineers India.

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- 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