

IBC 2003 Exhibition and Conference, Amsterdam

The International Broadcasting Convention (IBC) is one of the world's premier broadcast technology events. Michael Gordon-Smith, ABA member, Alastair Gellatly, Assistant Director Engineering and Richard Longman, Manager Planning Projects attended this year's annual conference and exhibition which was held in Amsterdam from 11 to 16 September 2003. Alastair Gellatly reports.

The major themes of the conference included:

- digital radio
- digital television, including advances in compression technologies, and
- program content and production.

Digital radio

T-DAB (Eureka 147)

The T-DAB digital radio system has been operating in a number of countries for some years. Take-up of receivers was initially slow but now take-up rates are improving considerably due to the greater range of receivers and falling prices. At the IFA consumer electronics show in Berlin at the end of August 2003, 57 models of T-DAB receivers were on show. Current receiver penetration for T-DAB is around 175 000 in UK and 80 000 in Germany. Although other European countries have operating services, the receiver penetration is very low.

Sony, through its participation in the World DAB group, has stated that it intends to launch a T-DAB receiver in early 2004, a move that is expected to stimulate demand further. Currently there are four manufacturers making the electronic chips for T-DAB receivers, and the competition has helped bring down prices.

There is certainly an incentive for receiver manufacturers to produce digital

radio receivers with the replacement radio market for Europe estimated at 11 billion euros (assuming a conservative average price of 50 euros).

Spectrum availability is an important issue for further growth of T-DAB services in Europe, which in part will hinge on the outcomes of an ITU regional planning process for Europe and Africa. The planning is to look at planning VHF (Band III) and UHF bands for digital television and also digital radio in the VHF band. Planning arrangements were previously developed for T-DAB in both the VHF band and L-Band, with the new planning process superseding only the VHF arrangements. A planning conference is to be held in March 2004, which will set up the planning process, and the results of the planning are to be considered at a second conference in 2005 (or possibly 2006).

A recent announcement made jointly by the World DAB Forum and the Digital Radio Mondiale (DRM) Forum has set the scene for collaboration between the two groups. This is

expected to lead to the development of dual standard DRM/T-DAB digital radio receivers, in much the same way we now have AM/FM analog radio receivers.

DRM

All three ABA attendees came away from the conference enthusiastic about the prospects of Digital Radio Mondiale, a new digital radio standard for the AM bands both in the medium wave (MW) (traditionally used in Australia for AM radio) and short wave (SW) bands (typically used for international broadcasting). British transmitter infrastructure



provider, VT Merlin, provided a car equipped with a DRM receiver (software receiver running on a portable PC) to demonstrate the DRM system. A number of short wave and medium wave services were available for reception in the Netherlands, including an MW service from the UK, and SW services from Portugal and Russia. Reception of all services was near perfect, the only exception being in a tunnel that was several hundred metres long. With the audio sounding as good as typical FM broadcasts (even for the music format programming being transmitted on the UK MW service), DRM seems to have a lot to offer AM broadcasters and listeners.

In addition to the improved audio quality, DRM operation also has cost advantages for the broadcaster. The cost of converting an existing analog transmitter to DRM operation is estimated to be 10 to 20 per cent of the cost of a new transmitter. DRM operation is expected to lead to 40 per cent savings in power costs.

Currently no DRM receivers are available, other than for the do-it-yourself radio enthusiast who can modify an existing receiver and feed the output into a personal computer and use software available on the Internet for 60 euros to decode the audio from the DRM signal. It is likely to be a couple of years before commercial receivers are available.

Surround sound

Surround sound is becoming a reality in broadcasting. It is already well established in cinema; and more recently DVDs and European broadcasters are beginning to implement it, even in radio broadcasting. Of course Australian digital television broadcasts already include some 5.1 surround content. A recent (Christmas 2002) concert was transmitted live by ORF (Austria) in 5.1. While Dolby Digital is well documented in standards and should

be properly handled by suitably equipped set-top boxes, DTS is also now becoming an option but may not be as well handled by set-top boxes.

In the digital radio world, NTL (UK) and Radioscape have announced a trial of broadcasting 5.1 surround sound using the Internet protocol datacasting capability of the T-DAB system. It is proposed to make use of the high coding efficiency of Windows Media 9 (see also discussion on Video Compression below) to deliver 5.1 surround sound at a rate of 128 kbit/s (compared to the 384 kbit/s typically required by established standards such as Dolby Digital).

Digital television

UK developments

A particularly interesting presentation by Peter Marshall (Digital TV Group) outlined the work taking place in the UK to promote digital television and work towards the switch off of analog television (currently proposed for 2010). This work has covered a number of areas including benchmarking viewer antenna performance, and running a trial in which groups of households were only allowed to watch digital television (i.e. no analog viewing was allowed). This highlighted further issues to be studied and resolved, particularly electronic program guides and home recording.

Single frequency networks

Doug Iles of Broadcast Australia presented a paper describing implementation issues for single frequency networks and included an example of the ABC's single frequency network on Queensland's Sunshine Coast.

Video compression

MPEG2 is the video compression system used in most digital broadcasting systems

today. However, significant progress has been made with new standards. The more recent MPEG 4 (which was developed a few years ago) has now been improved further, allowing the same picture quality with even lower data rates. The new version is known by several names including MPEG 4 AVC and ITU H.264. However, there is competition from Microsoft with Windows Media 9, which also achieves similar bit rates to MPEG4 AVC. A demonstration at the IBC exhibition showed MPEG 4 AVC running an HDTV program at 4 Mbit/s, and another coded in WM9 at 6 Mbit/s alongside SDTV MPEG2 running at the same data rate: the difference was quite amazing.

Loudness

The conference included two presentations on loudness issues: one by Belgium National Broadcaster VRT, and the other by Dolby. VRT demonstrated the improvements that can be achieved by having common audio level metering throughout all areas of a station, through specifying reference levels, providing appropriate training and communication between engineering and production staff. Dolby discussed the Dolby loudness meter and 'in-house' listening tests. Dolby's listening tests showed that perception of loudness levels is very subjective and variable, noting that even the same listener will not always agree with themselves!

Production

There were more sessions on production at this year's conference including a fascinating account of getting the pictures back from Iraq during the recent conflict. Another session was the behind the scenes look at producing the 'Led Zeppelin' DVD, reportedly the most popular music DVD of all time.

