Innovations

Fred Gengaroli, ABA Director Engineeering, prepared this report on the recent IBC Conference in Amsterdam (8–12 September)

IBC2000

The International Broadcasting Convention (IBC) is one of the world's premier broadcast technology events. The show covers all the key areas of the electronic media business including audio, cable, film, grip, Internet, lighting, multimedia, production, post production, radio, satellite and transmission. The event consists of an exhibition, conference and program festival. Within the 40 000 square of exhibition space more than eight hundred companies were represented, including every major supplier of broadcast technology. The conference tackles all the technical and management issues affecting the broadcasting industry.

The Internet and broadband delivery technology

On 7 September, the conference was preceded by a one-day pre-show tutorial which dealt with the Internet and broadband delivery technology. Of particular interest to broadcasters was the presentation by Charles Jablonski, Geocast — USA and president of SMPTE, which depicted the current world data broadcasting scene as confused and having little direction. Mr Jablonski attributed this lack of direction mainly to little commitment by the broadcasters, lack of suitable receivers and low data rate (referring to current technologies such as vertical blanking interval (VBI), FM subcarriers and teletext.

With the advent of digital television however, there is now a 'bigger pipe' available offering the ability to provide data opportunistically even using 1080i (high resolution HDTV) and a return channel infrastructure is being made available (allowing interactivity). Geocast believes that data broadcasting should be PC based (fed by a DTV set top box) and must be always 'on'.

Conference presentations

Friday 8 September marked the official beginning of the conference. A synopsis of presentations of particular interest from a planning point of view follows. Full papers are available on request by contacting Fred Gengaroli.

Receiving DVB-T: Technical Challenges, presented by SPASE BV, The Netherlands.

This presentation introduced some of the problems (and some solutions) associated with 'echoes' (reflections) in single frequency networks (SFN).

UK DVB-T: First Operational Steps, presented by Crown Castle International, UK.

Some of the problems experienced in the UK were discussed. Difficulties associated with accurate measurements of effective radiated power (ERP), loss of signal margin and the difficulty in performing spectrum analysis of the digital signal, due to the lack of a permanent feature of the COFDM signal (the modulation method employed by the digital transmission standard chosen for Australia).

The RAI DTT Pilot Trials in Turin, presented by RAI, Italy.

The Italian national broadcaster RAI conducted pilot trials for digital television in Rome using VHF and in northern Italy using UHF. A small UHF SFN is now being piloted in Turin on channels 28 and 66. A number of programs are offered including RAIUNO, RAINEWS24, RAISPORT and two commercial programs. Signal strengths vary from approximately 50 to 58 dBμV/m for fixed reception to 78dbμV/m for indoor portable antennas. Service availability ▷

Glossary

API: application programming interface

COFDM signal: the modulation method employed by the digital transmission standard chosen for Australia

ERP: effective radiated power

DSL: digital subscriber line

DTV: digital television

HDTV: high definition television

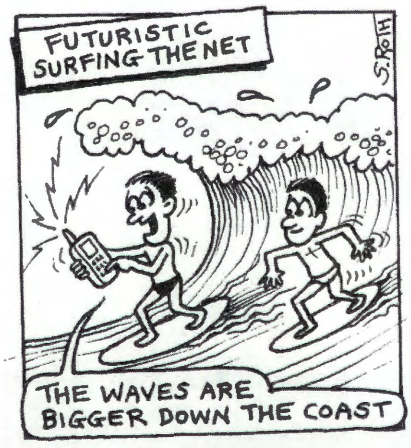
PDR: personal digital recorders

RAM: random access memory

was tested up to transmission paths of 110 km and reliable reception was found to be achieved at approximately 55 dBμV/m or greater.

The Genesis Project — Planning for Analog Switch-Over, presented by ITC and ntl, UK.

The UK is now turning its attention to strategic options for digital television frequency planning during and after analog switch-over. This presentation explored possible transition scenarios ranging from early switch off of some analog transmitters thus forcing large group of viewers to switch to an alternative delivery platform to receive free-to-air services, to an abrupt transition in some cases where analog channels are converted (overnight) to digital. The issue of spectrum release for non-broadcasting purposes is also under consideration at present, however any such proposal would need to consider carefully European and ITU agreements on spectrum allocation.



Service Opportunities from Broadband Access Technologies, presented by Hughes Network System Europe, UK.

This presentation examined several solutions for delivery of broadband access systems delivering a range of entertainment, data and voice services. Digital subscriber line (DSL) delivers up to 6 Mbps (and this figure will rise) over the telephone wires already connected to the home. This is sufficient to carry at least one television channel plus voice and data services. Cable television networks can deliver to subscribers (in a share mode) up to 46 Mbps, thus enabling the delivery of data and television programs. Other delivery systems explored in this presentation include satellite, mobile wireless and point to multipoint wireless systems.

TV-Anytime — The technology and the tools, mini-conference chaired by NDS, UK.

RAM (random access memory) capacity is doubling on average every eighteen months, and hard disk capacity is doubling about every twelve months. At this rate, storage of more than 16 000 hours will be possible. Personal digital recorders (PDR) are set to revolutionise the way content is distributed and used and will enable a range of opportunities (and some threats) for content providers, service providers and broadcasters. It is expected that in the USA there will be about 750 000 PDRs by end 2000, and about 8.2 million in the world by 2002.

DVB–MHP

At IBC 2000, DVB introduced its multimedia home platform (DBV-MHP) version 1.0. DVB-MHP offers a common application programming interface (API) based on a public standard, open to anyone to develop, build upon and apply. DVB-MHP is Java-based technology and thus will provide interactive services to digital television viewers regardless of the service provider or digital receiver supplier. DVB-MHP will allow the delivery of free-to-air television, enhanced television, interactive television and Internet content, including web browsing, email, e-commerce and many other applications with one interoperable API. The MHP specification was adopted by DVB in February 2000 and currently many major European players, content providers, broadcasters/operators and manufacturers have committed to the adoption of the MHP standard.

DRM

At the Digital Radio Mondiale (DRM) stand Giles Tanner, ABA General Manager and Mr Gengaroli had the opportunity to speak directly with the main players involved in the DRM project. DRM is a consortium of different organisations from right across the broadcasting industry and from all over the world. DRM is developing (by 2001) a worldwide standard for digital broadcasting in the broadcast radio bands below 30 MHz (which of course include AM). Tests were conducted at 1296 kHz from a site in England to reception sites as far away as central Germany. When propagation conditions permitted reasonable signal to noise ratios, the digital reception was flawless for an audio quality equivalent to mono FM. DRM's use of the OFDM modulation system (similar to digital television) makes it possible to use single frequency networks if required.

Full papers from the conference are available on request by contacting Fred Gengaroli on (02) 6256 2851 or email: fred.gengaroli@aba.gov.au.