

# Sydney radio trials digital programs

*In the wake of digital radio broadcasting trials, the federal government and the radio industry have several issues to work out before the technology is officially launched in 2001*

**J**anuary 1, 2001, the date by which digital radio broadcasting is scheduled to commence in Australia, is not that far away. And although digital technology trials have already begun using the Digital Audio Broadcasting (DAB) system's encoding method Eureka 147, the industry is still in a state of preparation.

The development of Eureka 147 as a world standard and recent introduction of digital broadcasting in Germany, France and Singapore prompted Australian digital radio trials. Officially, they began on June 10, following a launch by the consortium Digital Radio 2000. Digital Radio 2000 comprises the ABC, Austereo and the Australian Radio Network which joined Sydney-based racing channel 2KY to form the consortium. (John Singleton's Macquarie network pulled out before the official launch but other partners are expected to join the consortium before year-end 1999).

2KY has a one-year licence from the Australian Communications Authority to use spectrum on the L-band. (For DAB signals, the spectrum that has been internationally agreed for use is the so-called "L-Band". DAB signals use part of the L-Band with a frequency of about 1500 MHz). It began trialing digital radio broadcasting from its Parramatta headquarters six months ago, around Christmas 1998, but following agreement between the consortium members, Digital Radio 2000 will broadcast four channels of digital music, news and racing from two radio transmitters in Sydney in October in a joint trial of digital radio.

2KY's Parramatta transmitter was purchased by the station at a reported cost of \$200,000. The second transmitter will be purchased by the consortium and broadcast in tandem with the first from October, i.e., both will carry the same transmissions which will consist of programming from the four stations.

Ultimately, five digital radio transmitters will be located in the Sydney metropolitan area to transmit the signals.

The trials are intended initially for the consortium members to focus on getting practical usage of the technology and receivers while simulcasting their programming. "We have to evaluate some of the issues facing digital broadcasting such as how the signals will work in traditional 'drop out' zones such as canyons around the Sydney metropolitan area," says Colin Knowles, head of the ABC's technology unit. "But the prime objective is to showcase digital radio broadcasting to the people who make the programs and place the advertising. What we then have to

do is make the content attractive to consumers or find out what it is they want which will encourage them to switch over from analog. We know that simply translating what is on AM and FM radio now onto digital channels won't do it."

According to the Australian Broadcasting Authority, DAB can provide several data delivery services. The data it broadcasts is packaged in roughly three sections: intelligence for the DAB network which enables the receivers to know what channel to tune to so the listener can stay on the same services across several transmitters; Program Additional Data (PAD) which allows the programmer to broadcast a song and also send the song title and artist name or any other information about the program that the listener is tuned to (PAD can also include pictures if the receiver has a display unit); and non-PAD information, an endless list of additional services - share prices, weather forecast, press releases, even software updates for the DAB receiver - which are received and stored by the receiver.

Datacasting may be a drawcard for the public but Knowles thinks that its applications for radio are geared more towards the business market. "First you have to find a datacasting application that needs the portability of radio. It must also add benefit to the consumer who must be prepared to pay for it and it mustn't detract from what is on the radio already. Datacasting in this respect is probably much more useful for

business. Program content will make it interesting for the consumer."

That said, racing is one application which has datacasting possibilities. Races could broadcast simultaneously with dividends in data form, receivable on a personal computer or digital radio with small screen. "But any other application would need to relate to the mainstream of the program in order to have interest for the consumer. Even unrelated applications such as being able to receive the Internet may soon be overtaken by other technologies," says Knowles.

The consortium expects to run trials for between 12-18 months from October 1999. In principle, the Minister for Communications, Information Technology and the Arts, Senator Alston, has suggested commencing digital radio broadcasting in January 2001. But as there is no legislation in place, the Minister's Planning and Steering Group must attempt to finalise policy before the end of 1999 in order to establish a legislative framework from which digital radio broadcasting can progress. The hope is that legislation to amend the *Broadcasting Services Act* will go to parliament in the autumn/winter session next year.

From a technological perspective, ongoing trials of Eureka 147 by the communications laboratory at the National Transmission Authority in Canberra have examined most aspects of digital broadcasting.

Eureka 147 works by digitising an audio signal and creating a stream of digital information which a receiver then recreates as the original audio signal. The Eureka 147 system allows more data to be broadcast to a receiver than an analog system and provides for a range of things including datacast-

ing and CD quality or near-CD quality sound.

Despite the trials, Eureka 147 has still to be confirmed as the system of choice for digital radio broadcasting in Australia. Other alternatives, including systems trialed in the US called In Band On Channel (IBOC) and In Band Adjacent Channel (IBAC) have fallen by the wayside. IBOC simply adds a signal to the existing transmission and IBAC uses an adjacent transmission. Trials of both discovered that IBOC caused interference with other channels and IBAC didn't work well because of transmission congestion.

Unlike IBOC and IBAC, Eureka 147 runs on a different bandwidth altogether. It requires totally new infrastructure but as each transmitter carries at least five services, the infrastructure costs can be shared so the cost of setting up is lower, split among the participants operating off the single transmitter.

Eureka 147 is capable of broadcasting as a satellite or terrestrial transmission. A minor problem is that although signals can be transmitted from a satellite, no one wants to carry a 45cm satellite dish around with them to receive the signals. The ABC's Colin Knowles says that a small portable transmitter in a Walkman-type device would solve that problem. Rumours that the Japanese are addressing this issue with an alternative system which should launch in a couple of years' time and may be a better variant of the Eureka 147 technology may yet stymie the progression of Eureka 147 in Australia.

In the UK, where digital radio was introduced by the BBC two years ago, the price of a hi-fi or car stereo to broadcast digital radio has not yet excited the

public and though prices are falling, consumers in Australia are unlikely to want to spend between \$1,000-2,000 for the equipment required. Ahead of them, the federal government and radio industry have a massive campaign to market the advantages of digital technology to the public.

In addition, they also have to address in the next 18 months some of the issues which will affect digital radio broadcasting in Australia. Key among these are penetration of the DAB signal into manmade structures such as buildings and tunnels, the lack of program material and the lack of DAB receivers in the marketplace.

The L-Band frequencies proposed for DAB are more easily absorbed into the structure of a building than an FM signal but can penetrate through windows easily. What no one knows yet is how significant the lack of penetration of DAB signals into office blocks, large buildings and suburban homes will be.

Program material is crucial in convincing consumers to upgrade to a digital receiver and equipment. Its scarcity also partly explains why there are so few receivers in the marketplace. Lack of content means that consumers in other countries have found no reason to switch to digital radio, hence there has been little demand for the receivers.

Providing enough receivers at retail level is every bit as important as providing program material. At the Fourth International DAB Symposium in Singapore in January, advocates of digital radio broadcasting estimated that it might take another five years before digital radio receivers reach even a five per cent penetration of the world market.

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