

## RADIO SET TO JOIN THE DIGITAL CLUB

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### 1. Introduction

Television, newspapers, magazines, billboards, the humble telephone, music: all have already moved to digital delivery platforms. However, traditional, AM/FM radio is still operating with technology that's at least 40 years old, in the case of FM radio, and over 80 years old, in the case of AM radio.

The Government and the Australian radio industry have been discussing ways of introducing digital radio in Australia since the early 1990s. The radio sector has actually been trialling broadcasts with different digital radio technologies since 1999 and this continues today with trials being conducted by Commercial Radio Australia (**CRA**) in Sydney.<sup>1</sup>

The Australian Government has now provided a framework for the introduction of digital radio in Australia through the *Broadcasting Legislation Amendment (Digital Radio) Act 2007* and the *Radio Licence Fees Amendment Act 2007*.<sup>2</sup> This paper examines some of the key features of this legislation and their implications for radio broadcasters and for consumers.

### 2. What are the benefits of digital radio?

Digital radio is considered to be the most fundamental advance in radio broadcasting technology since FM stereo radio in the 1970s. Digital radio will deliver many benefits to consumers including:

- *better quality audio* -with the potential for CD quality sound;
- *interference free reception*;
- *ease of tuning* – listeners can search for stations by name rather than by a frequency;
- *additional radio stations* – digital radio uses spectrum more efficiently which means radio broadcasters will be able to broadcast more than one audio channel at the same time;
- *multimedia capability* – in addition to audio, digital radio technology allows the transmission of data, text and images; and
- *the ability to pause, rewind and record live radio.*<sup>3</sup>

### 3. Policy challenges faced by the Government

Media policy is often a complex area for Governments and the development of the digital radio legislation has certainly presented its fair share of challenges to the Government. Some of the issues which the Government has had to consider include:

- **Which technology to adopt?:** there are a number of competing technologies capable of delivering digital broadcast radio and the world is currently divided into a number of technology blocs as far as deploying digital radio is concerned.
- **It's new technology:** notwithstanding the fact that digital radio has been successfully deployed in some other countries, the technologies in use are still relatively new and are still in the process of being fine-tuned.
- **Spectrum availability is currently low:** most of the spectrum suitable for the implementation of digital radio services is being used for a range of other broadcasting/communications uses and so available spectrum, appropriate for digital radio, is limited particularly in major metropolitan markets like Sydney and Melbourne.
- **The incumbent sector is very large:** there are currently over 270 commercial radio broadcasting services, over 350 community radio licences issued, 2 national radio broadcasters (ABC and SBS) which each carry a number of services and approximately 2000 high and low powered open narrowcasting radio services.
- **Will digital radio be a 'supplementary' or 'replacement' technology to analogue radio?:** a question that arises because of a number of factors such as limited spectrum and the size of the incumbent radio sector.
- **How to ensure that digital radio delivers new and innovative programming:** this has been identified by the Government as the key feature that will lead to the take-up of digital radio.
- **Equity of treatment for regional areas:** how to ensure that people living in rural, regional and remote areas of Australia also get equitable access to new digital radio services even though costs for deploying digital radio services there may be disproportionately higher than in metropolitan areas.
- **Maintaining the traditional distinctions between TV and radio** – digital radio's multimedia capabilities (it's capable of transmitting still and moving images) mean that it has the potential to blur the traditional boundaries between radio and TV.

These policy considerations help to shed some light on the way in which the Government has chosen to implement digital radio in this country.

#### 4. A summary of some key features of the legislation

##### **Start up dates**

Digital radio broadcasting is to commence by **no later than 1 January 2009** in the "metropolitan licence areas". These are defined as Sydney, Melbourne, Brisbane, Perth, Adelaide and Hobart.

In every other licence area (known as a "regional licence area"), digital radio broadcasting will commence on a date to be specified in a legislative instrument made by the Minister for Communications, IT and the Arts. **Priority access to spectrum**

The current lack of available spectrum means that, for the foreseeable future, only part of the incumbent radio sector will be able to provide digital radio broadcasting services. For that reason, the Government has decided that spectrum will only be made available to licensees of the major radio broadcasting sectors which are:

- **commercial radio broadcasting services** (e.g. the *Triple M* stations, *Nova 96.9 Sydney*, *2GB* and *3AW*);
- the **national radio broadcasting services** (e.g. *Radio National* and *Triple J*); and
- "designated community radio broadcasting" services – those which service 'wide areas' (there are about 40 in total) such as *FBI* in Sydney and *Triple R* in Melbourne.

##### **Assistance with capital costs**

All licensees will face major capital expenditure costs in upgrading transmission infrastructure in order to make the transition to digital radio broadcasting. There are also likely to be associated programming costs.

The Government has agreed to provide financial assistance to the community radio sector (\$10.5 million over 4

years) and the national radio broadcasters to help them with acquisition costs for infrastructure so that those sectors can begin digital radio broadcasts by 1 January 2009.<sup>10</sup>

The Government will also assist the commercial radio sector but in a different way.<sup>11</sup> The digital radio legislation states that for a period of 6 years from the digital radio start date (provided that all commercial radio broadcasters in a licence area continue to provide at least one digital radio service) no new digital radio broadcasting licences will be issued in that licence area.<sup>12</sup> This moratorium is designed to ensure that the commercial radio sector has a “level of stability and certainty during the digital radio investment phase”.<sup>13</sup>

### *The technology platform*

The Government has adopted a digital radio technology platform known as Eureka 147 or Digital Audio Broadcasting (DAB). This is the most mature and widely deployed digital radio broadcasting technology in the world having been adopted throughout Europe, Canada and a number of Asian countries.<sup>14</sup>

DAB is an attractive technology option for a number of reasons including its ability to use spectrum efficiently. AM/FM radio requires a separate frequency to be set aside for each radio station with sufficient channel spacing to prevent interference. DAB combines multiple audio streams (through audio compression and a technical process called “multiplexing”) into a single wide-band channel called a “DAB ensemble”.<sup>15</sup> The relevant technical infrastructure for creating the DAB ensemble is known as a “multiplex”.

Due to recent advances in audio compression standards, 9 radio broadcasting services will be able to fit in one DAB ensemble. The new compression standard is the advanced audio codec (AAC+) and the updated version of DAB relying on this new compression standard has been christened DAB+.<sup>16</sup> However, due to the extended coverage requirements of regional, rural and remote areas of Australia, DAB may not be the most cost effective digital radio technology for those areas. The Explanatory Memorandum to the digital radio legislation infers that other digital radio technology platforms, including one called Digital Radio Mondial (DRM), are likely to be more suitable for regional, rural and remote areas.

At this stage, the Government has not mandated a digital radio broadcasting technology for areas outside of the “metropolitan licence areas”. Rather, it has adopted a ‘wait-and-see’ approach and will review all available technology options before 1 January 2011.<sup>18</sup>

### **5. Guaranteeing fair access to digital radio multiplexes**

The digital radio multiplex introduces some new dynamics to the business of running a radio station. Traditionally, each AM/FM radio broadcast licensee holds an individual transmitter licence which authorises it to operate its own radio transmitter for the purposes of broadcasting its programs.

With DAB, the multiplex combines the signals of several radio services into a single data stream which is then fed to a transmitter for broadcast. This means that radio broadcasters won’t need individual transmitters in order to provide digital radio services using DAB. Rather, they will need to get access to one of the multiplexes in their licence area.

A new category of licence known as a “digital radio multiplex transmitter licence” has been created by the digital radio legislation. In order to ensure that all eligible radio broadcasters get access to multiplexes on a non-discriminatory basis, the Government has introduced a number of safeguards.

Firstly, every incumbent commercial, national and designated community radio broadcasting licensee will be automatically entitled to gain access to one of the multiplexes in its licence area (known as a ‘foundation

**multiplex**<sup>19</sup>). The licence areas of Sydney and Melbourne will have 3 foundation multiplexes. It's anticipated that, in each licence area, there will be more than enough multiplex capacity to meet the minimum requirements of all the eligible incumbent broadcasters.

Foundation multiplexes will be divided into 3 categories. Category 1 foundation multiplexes will be reserved for commercial and designated community radio broadcasters. Each commercial radio broadcaster will be entitled to access one-ninth of the total transmission capacity of a Category 1 foundation multiplex and the services that facilitate the use of that capacity (known as a **"standard access entitlement"**)<sup>20</sup>. However, two-ninths<sup>21</sup> of the capacity of a Category 1 foundation multiplex will be reserved for designated community radio broadcasters.

Category 2 foundation multiplexes will be able to carry all incumbent broadcasting services. Each commercial radio broadcaster will have a standard access entitlement equivalent to one-ninth of the total transmission capacity of a Category 2 foundation multiplex subject to reservations of capacity<sup>22</sup> for designated community radio broadcasters (two-ninths) and the 2 national radio broadcasters (one-ninth each).

Category 3 foundation multiplexes will be reserved solely for the national radio broadcasters.<sup>23</sup>

In respect of Category 1 or 2 foundation multiplexes, the eligible broadcasters will also have the first right to jointly own their respective multiplex transmitter licence. To exercise this right, they will have to establish separate joint venture companies to apply for and hold the relevant multiplex transmitter licence.<sup>24</sup> If the eligible broadcasters in a licence area are not interested or fail to apply to hold an available multiplex transmitter licence, the Australian Communications and Media Authority (**ACMA**) will be entitled to put that licence up for public auction.

Finally, irrespective of who the controller is, the multiplex access arrangements will be supervised by the Australian Competition and Consumer Commission (**ACCC**). Specifically, each digital radio broadcasting multiplex transmitter licensee will have to give an **"access undertaking"** (a legally enforceable promise) to the ACCC to the effect that it will comply with the terms and conditions of any standard access entitlements that apply plus other requirements that apply in relation to the access and use of multiplex capacity by eligible broadcasters.<sup>25</sup>

The terms of such an access undertaking may include, for example, terms<sup>26</sup> specifying the price which the multiplex transmitter licensee will charge eligible broadcasters to access the multiplex.

The ACCC can approve or reject an access undertaking and also has the power to go to court to enforce compliance with it or seek an order for compensation for any party that has suffered loss or damage as a result of a breach of that access undertaking.<sup>27</sup>

## 6. Programming changes under digital radio

The most important changes resulting from the introduction of digital radio broadcasting are likely to be in the area of programming. With DAB+, each broadcaster will have about 128 kilobits per second of data transmission capacity which will allow it to broadcast more than one audio channel at the same time. CRA reports that:

*each broadcaster will now have the ability to ... split their signal to offer two or three audio channels, or broadcast<sup>28</sup> a combination of better than FM quality sound plus lots of associated data such as text or images.*

To that end, it will not be compulsory for radio broadcasters to simulcast their analogue radio programs in digital mode. However, it is reasonable to assume that most, if not all, radio broadcasters will use some of their digital transmission capacity to simulcast their analogue programs to ensure continuity of services to their audiences.

Digital radio receivers are being developed which will be capable of displaying non-audio content. Radio broadcasters will be permitted to broadcast such content (defined as “**digital program enhancement content**”) which is:

- in the form of **text**,
- in the form of “**still visual images**” (i.e. no video-type services);
- **as specified by the Minister** in a legislative instrument; or
- in **any combination of the above forms**.<sup>29</sup>

There are many potential applications of digital program enhancement content such as scrolling text with news or weather updates or the name of a track currently playing or the use of still visual images to display album covers or advertising. According to the Explanatory Memorandum:

*The power given to the Minister to broaden ... the forms of content that could be provided ... allows for additional types of content to be brought within the meaning of ‘digital program enhancement content’. This may allow, for example, consideration to be given to specifying services such as animation to be provided as ‘digital program enhancement content’.*<sup>30</sup>

The digital radio legislation has also established a new category of service to be known as a “**restricted datacasting service**”. Holders of a restricted datacasting licence will be able to use the DAB digital radio platform to provide services other than traditional radio and TV programming.

The Explanatory Memorandum states that restricted datacasting services could be used to provide niche services such as:

- information-only programs;
- educational programs;
- interactive computer games; and
- Parliamentary broadcasts.<sup>31</sup>

During the 6 year moratorium period, a person is prohibited from being in a position to exercise control of both a commercial radio broadcasting licence and a restricted datacasting licence.<sup>32</sup>

## 7. Review opportunities

Finally, because of the state of play with the technology and unresolved issues for regional licence areas, the Government has legislated for the following formal reviews of the digital radio legislation:

before 1 January 2011, a review of (amongst other things) the relative merits of using various terrestrial and satellite technologies capable of transmitting digital radio broadcasting services and restricted datacasting services to “regional licence areas” and the state of development of those technologies and associated digital radio receivers;<sup>33</sup>

- 4.1 before 1 January 2014, a review of the development of various terrestrial and satellite technologies capable of transmitting digital radio broadcasting services and restricted datacasting services in Australia, the implementation of those technologies in foreign countries and the operation of the *Broadcasting Services Act 1992* (Cth) in so far as it deals with the licensing and regulation of digital radio broadcasting services and restricted datacasting services; and<sup>34</sup>

- 4.2 before 1 January 2014, a review of (amongst other things) the use of spectrum for the transmission of digital radio broadcasting services and restricted datacasting services, the availability of additional frequency channels for such services and the operation of the *Radiocommunications Act 1992* (Cth) in so far as it deals with licensing and regulation in relation to the transmission of digital radio broadcasting services and restricted datacasting services.<sup>35</sup>

## ENDNOTES

<sup>1</sup> CRA is the industry body for the Australian commercial radio sector. Its trial is being conducted as a joint venture with the Sydney commercial radio stations and the ABC and SBS. For more information, see CRA's website at <http://www.commercialradio.com.au>.<sup>2</sup> Many of the broad policy principles contained in the legislation were first announced by Senator Helen Coonan, the Minister for Communications, Information Technology and the Arts on 14 October 2005 and can be found at: [http://www.minister.dcita.gov.au/media/media\\_releases/framework\\_for\\_the\\_introduction\\_of\\_digital\\_radio](http://www.minister.dcita.gov.au/media/media_releases/framework_for_the_introduction_of_digital_radio).<sup>3</sup> For more information about all the features of digital radio including developments in receiver technology see the Digital Radio Australia website at <http://www.digitalradioaustralia.com.au>.<sup>4</sup> To read about some of the technology options for digital radio, see the *Report of the Digital Radio Study Group* (March 2003) at [http://www.dcita.gov.au/data/assets/word\\_doc/23361/DSRG\\_report\\_March\\_2004.doc](http://www.dcita.gov.au/data/assets/word_doc/23361/DSRG_report_March_2004.doc). The following website also provides a good, and more current<sup>5</sup> overview, of the different digital radio technologies [http://en.wikipedia.org/wiki/Digital\\_radio](http://en.wikipedia.org/wiki/Digital_radio).<sup>6</sup> Explanatory Memorandum to the *Broadcasting Legislation Amendment (Digital Radio) Bill 2007* and the *Radio Licence Fees Amendment Bill 2007*, p 8. For example, South Korea has launched digital radio using a transmission standard called Digital Multimedia Broadcasting (DMB). South Korea's DMB service carries a combination of TV, digital radio and data channels.<sup>7</sup> Sub section 8AC(3)(a), *Broadcasting Service Act 1992* (Cth) (the "BSA").<sup>8</sup> Sub section 8AC(3)(b), *BSA*. Section 8AA, *BSA*. A "designated community radio broadcasting licence", is one that has the same licence area as a commercial radio broadcasting service (e.g. the whole of Sydney). In other words, it is authorised to service a 'wide area'. This is to be contrasted<sup>10</sup> with the majority of community radio broadcasting services that are licensed to serve smaller, local areas. These funding commitments are contained in the *Federal Budget 2007-08* at <http://www.budget.gov.au/200708/bp2/html/expense-05.htm>.<sup>11</sup> When the Minister first announced the digital radio policy framework, she said that the Government might, in the future, provide capped financial assistance for commercial radio broadcasters in regional areas – see note 2. Sub-sections 35C and 35D(2), *BSA*.<sup>12</sup> *Explanatory Memorandum*, p. 39.<sup>13</sup> The technical standards for DAB are set by an international non-government organisation called WorldDMB. For more information on the features of DAB, refer to the website of WorldDMB at <http://www.worlddab.org>.<sup>14</sup> For information on countries that have implemented DAB, see <http://www.wohnort.demon.co.uk/DAB/index.html>.<sup>15</sup>

[http://en.wikipedia.org/wiki/Digital\\_Audio\\_Broadcasting](http://en.wikipedia.org/wiki/Digital_Audio_Broadcasting).<sup>16</sup> CRA, "Australia to use DAB+ for Digital Radio Rollout", 14 March 2007 at [http://www.digitalradioaustralia.com.au/index.cfm?page\\_id=1001&display\\_news\\_id\\_1129=1002](http://www.digitalradioaustralia.com.au/index.cfm?page_id=1001&display_news_id_1129=1002).<sup>17</sup> *Explanatory Memorandum*, p. 6. DRM is currently being trialled by the company Broadcast Australia in Canberra <http://www.broadcastaustralia.com.au>.<sup>18</sup> Section 215A, *BSA*.<sup>19</sup> *Explanatory Memorandum*, p. 78. Section 118NQ, *Radiocommunications Act 1992* (Cth) (the "Radcoms Act"). The standard access entitlement for commercial radio broadcasters cannot be transferred, can only be claimed in relation to one multiplex in a licence area and permit the provision of one or more digital commercial radio broadcasting services in the licence area.<sup>21</sup> Section 118NR, *Radcoms Act*.<sup>22</sup> Section 118NS, *Radcoms Act*.<sup>23</sup> Section 109B, *Radcoms Act*.<sup>24</sup> Sub-sections 102C(3), 102D(3), *Radcoms Act*.<sup>25</sup> Section 118ND, *Radcoms Act*.<sup>26</sup> *Explanatory Memorandum*, p. 73. Sections 118NZ and 118P, *Radcoms Act*.<sup>27</sup> See note 16. See the definition of "digital program enhancement content", section 6(1), *BSA*.<sup>28</sup> *Explanatory Memorandum*, pp 38-39. *Explanatory Memorandum*, p. 56. Section 54B, *BSA*.<sup>29</sup> Section 215A, *BSA*.<sup>30</sup> Section 215B, *BSA*.<sup>31</sup> Section 313B, *Radcoms Act*.<sup>32</sup>