

# CRA Response to Digital Radio Discussion paper

28 February 2014

#### CRA Submission for the attention of:

**Broadcasting Policy Branch** 

- Email: jason.potkins@communications.gov.au
- Mail: Jason Potkins Broadcasting Policy Branch Department of Communications GPO Box 2154 Canberra ACT 2601

Phone: (02) 6271 1328

### Contents

| Executive Summary   | 3  |
|---|----|
| Background  | 4  |
| The matters to be examined  | 6  |
|   |    |
| Part 1: The regulatory framework  | 7  |
| Policy settings   | 7  |
|   |    |
| Part 2: Restricted datacasting  | 15 |
|   |    |
| Part 3: The Technological Environment and Audience Profile                            | 16 |
|   |    |
| Part 4: Spectrum & licensing  | 31 |
| Green & cost effective future for radio broadcasters                                  | 34 |
| DAB+ infrastructure   | 36 |
| Digital radio is good for regional listeners  | 37 |
| Diversity of services for regional markets  | 37 |
| Regional stimulus from digital radio  | 38 |
|   |    |
| Further Activities  | 39 |
|   |    |
| Appendix A  |    |
| WorldDMB Global Update - Digital radio broadcasting using the DAB family of standards |    |
|   |    |
| Appendix B  | 49 |
| CRA's Regional Rollout Overview   | 49 |

COMMERCIAL RADIO

### **Executive Summary**

Commercial Radio Australia Ltd (CRA) is the peak industry body for commercial radio stations in Australia representing 99% of all commercial radio broadcasters across metropolitan and regional Australia.

Australia is considered internationally as a highly successful model for the planning and launch of free to air terrestrial DAB+ digital radio services. Delegations from around the world have come to study the technical, regulatory and commercial aspects of the Australian model.

Commercial, public service and community radio broadcasters have worked closely with the Australian Government to plan the highest powered permanent transmissions of DAB+ in the world. A supportive regulatory framework allows broadcasters to invest in new content, quality audio, robust networks, excellent coverage and new digital radio functionality.

Vehicle manufacturers are increasingly supporting DAB+ as line fit or as an option and the range of aftermarket products is expanding.

Manufacturers and retailers are now offering DAB+ receivers as low as \$29, many national retailer brands are keen to see coverage extended to regional Australia.

As part of the process of the digitalisation of the TV industry, and at the direction of former Minister Stephen Conroy,14MHz of VHF Band III spectrum in Ch9 and 9A has been assigned for the roll out of digital radio to regional radio licence areas (LAPs). Spectrum is being restacked to clear that band now.

The next steps are to formalise policy and planning for the rollout of DAB+ digital broadcast radio to regional Australia.

To this end CRA would welcome the Minister for Communications establishing an industry chaired Digital Radio Planning Committee for Regional Australia, comprised broadcaster stakeholders and with participation from the Department of Communications and the Australian Communications and Media Authority (ACMA) to plan the timetable for a phased regional roll out

Due to the scale of the regional rollout, it is essential that efficiencies are achieved in both spectrum planning and infrastructure deployment and a whole of industry approach would be advantageous.

The commercial radio industry has already undertaken some foundation work on planning and cost modelling which was provided to the then Federal Government and Opposition at the end of 2012. With this work as a first point for discussion, a joint committee may be tasked with the further development of a sustainable approach to rollout and the development of a timetable with key target dates for each regional centre.

CRA proposes that the Government establish a Digital Radio Planning Group for Regional Australia now and commit to a timetable of phased roll out of DAB+ services to regional Australia commencing in 2015/16.



### Background

The commercial radio industry is firmly committed to a DAB+ digital radio future. The competition in the media and communications space continues to expand and regional radio needs DAB+, a free to air, terrestrial digital platform to allow it to create diversity while continuing to use the efficiency and robustness of broadcast technology to meet the needs of audiences and advertisers.

On the industry's behalf, CRA led the planning and coordination of the metropolitan DAB+ digital radio rollout to the five mainland capital cities, in cooperation with the (now) Department of Communications, the ACMA, public service and community broadcasting sectors.

Section 215B of the *Broadcasting Services Act 1992* (BSA) and section 313B of the *Radiocommunications Act 1992* (Radiocommunications Act) required that the Minister for Communications initiate two statutory reviews of digital radio issues by 1 January 2014

CRA members and the ABC jointly trialled digital radio on the L Band in 2000.

SBS joined the trials when they launched on VHF Band III in 2003.

In 2005 then Minister Helen Coonan announced a digital radio framework using DAB+ on Band III.

Australian commercial broadcasters and ABC were active on the international taskforce that developed the DAB+ standard and that was officially ratified by ETSI in February 2007.

The official launch of digital radio on 6 August 2009 was celebrated with a simultaneous outside breakfast broadcast in Sydney, Melbourne, Brisbane, Adelaide, and Perth with commercial, ABC and SBS on air teams broadcasting live from a central location in each city.

The greater spectrum efficiency provided by the DAB+ platform and the success of Australia's launch provided confidence to many countries in Europe and parts of the Asia Pacific.

In short succession, permanent DAB+ services launched in Switzerland, Germany and Hong Kong with many other countries starting trial services and developing regulatory frameworks for the adoption of the DAB+ standard in recent years.

Currently an estimated 64% of Australians living in metropolitan areas, plus Canberra and Darwin where trials are underway, have access to DAB+ free to air broadcast digital radio.

Listeners in Canberra and Darwin have expressed frustration at the low power of the trials and have called for the DAB+ digital radio services to be made permanent and at a higher power.

In Hobart, which was originally planned as part of the metro launch, listeners continue to request DAB+ free to air broadcasting be made available to them.

In Canberra, where the ABC, SBS and the commercial sector share the trial multiplex there have been useful insights gained for joint planning for other regional centres.

The CRA DAB+ Regional Rollout Plan, as noted, was developed and submitted in late 2012.

30/05/2014 13:56

Page 4



This plan suggested a phased approach where as Phase 1 DAB+ digital radio would be rolled out over a period of 7 years to all regional population centres, towns and cities with a population in excess of 5000.

During Phase 1 rollout, Phase 2 may be planned for other areas of regional Australia.

The most cost effective approach was also noted as, in the majority of areas in regional Australia, the sharing of multiplexes by commercial and public service broadcasters, with two ensembles in the sub metro markets if spectrum capacity is available.

The investigation in Phase 2, or during the final stages of Phase 1, could explore how best to service remote areas and localised DAB+ transmissions for population areas of less than 5000 and for community broadcasters.





### The matters to be examined

The following issues have been raised by the Department for consideration as part of this review:

- 1. the development of various terrestrial and satellite technologies capable of transmitting digital radio broadcasting services and restricted datacasting services in Australia;
- 2. the use of spectrum for the transmission of digital radio services and restricted datacasting services in Australia;
- 3. the implementation of those technologies in foreign countries;
- 4. the operation of the BSA in so far as it deals with the licensing and regulation of digital radio and restricted datacasting services;
- 5. the availability of additional frequency channels for the transmission of digital radio broadcasting services and restricted datacasting services in Australia; and
- 6. the effectiveness of the multiplex access regime administered by the Australian Competition and Consumer Commission.



### Part 1: The regulatory framework

### **Policy settings**

Please note, that while the take up of DAB+ digital radio has been impressive in metropolitan areas in just 5 years – due in the main to the promotion of the incumbent broadcasters - CRA proposes that the *no new entrants* policy in relation to metropolitan DAB+ is extended.

CRA also recommends that a similar policy framework to that in place for metropolitan broadcasters be established, with minor variations to recognise the unique nature of regional broadcasting in Australia, including:

- > no cost spectrum for incumbent commercial radio licence holders;
- standard entitlement for incumbent commercial broadcasters in each LAP of between128kbps slot per current analogue service up to 50% of shared multiplex (shared between the commercial broadcasters in the LAP);
- no new analogue licences or new digital only entrants for a period of 10 years from date of switch on in each LAP;
- no restriction on new digital broadcast or data services that may be provided by incumbent broadcasters;
- broadcaster consortiums, (in some areas public service and commercial broadcasters jointly), hold the spectrum/multiplex licence

It is essential that the viability of the regional radio industry continues, therefore a new regional policy should also include

- current proportional representation of public and commercial radio sectors to be maintained in each market and provision made in Phase 1 where possible for wide area community and Racing Radio services;
- > the use of repeaters as an integral part of the digital radio channel plan;
- use of the Category C licence so that public and commercial broadcasters can share infrastructure wherever possible

#### 1. Is the licensing and planning framework for digital radio operating effectively? Should any changes be made to the regulatory framework?

CRA proposes that the Minister immediately establish a Digital Radio Planning Group for Regional Australia chaired by the industry, with the involvement of the Department of Communications, ACMA and key stakeholders. The Committee would have a mandate to recommend a suitable regulatory and technical framework for regional roll out of DAB+ digital radio to the Minister in time for the 2015 budget cycle.

#### Planning framework

The ACMA may have limited resources in relation to a planning exercise of this size and scope which CRA submits may have a slowing effect on the timeframe for planning regional rollout.

The proposed industry committee would:

- provide a forum for broadcasters and the ACMA to agree a digital radio channel plan for regional roll out, possibly by the end of 2014
- be provided with a small amount of funding to carry out the necessary detailed coverage and interference modelling to help inform the final cost modelling in time for input to the May 2015 budget

#### Licensing framework

The industry committee should:

- Establish a policy group to work with the Department and other key stakeholders on a suitable regulatory framework for deployment of DAB+ to regional centres over 5000 people and along main roads
- Agree with Government on the phased roll out to regional centres over the next 7 years with priority being placed on the largest population centres first, including Hobart, Canberra, Darwin and the Gold Coast. The latter with the aim of services being available for the Commonwealth games.

More generally, there is scope for improving the existing licensing framework for digital radio services.

The recent metropolitan DAB+ infill licensing process has provided CRA with significant insights into the strengths and weaknesses of the current licensing framework.

The most obvious area for improvement is the licensing process for the rollout of infills for DAB+ broadcasts. The current approval process, which is administered by ACMA and has involved the amendment of existing foundation category 1 digital radio multiplex transmitter licences, has been time consuming and, CRA believes, unnecessary in light of existing regulatory protections on interference management. This has had a significant impact on the speed and costs associated with the infill rollout, with associated delays in the launch of infill services in metropolitan areas.

The licensing framework for digital radio services is currently governed by a combination of the apparatus licensing regime in the Radiocommunications Act<sup>1</sup>, the Broadcasting Services (Technical Planning) Guidelines 2007 (**TPGs**) and the Digital Radio Channel Plans. It is necessary to be aware of the potential complexities of the broader context of the licensing framework for digital radio, as it is in this broader context of regulatory requirements and instruments that the implementation of the licensing framework for regional digital radio services would be developed and implemented.

<sup>&</sup>lt;sup>1</sup> Radiocommunications Act, sections 109B, 109C, 109D, 110 (amongst others).

In particular, while the TPGs make provision for the operation of single frequency networks (**SFNs**), the TPGs require the additional transmitters to be licensed by ACMA.<sup>2</sup>

These requirements in relation to the metropolitan infills have been implemented by ACMA as an amendment to the existing apparatus licences held by the DAB+ metropolitan Joint Venture Companies (JVCs). As per the requirements of the TPG, the licensing of additional infill transmitters has been undertaken on a site-by-site basis after interference management arrangements with the public service broadcasters have been put into place.

This process has been administratively cumbersome. CRA believes it is unnecessary in light of the comprehensive measures that already exist under the TPGs for managing adjacent and co-channel interference. These measures have also been augmented by the adoption by the JVCs of an interference management scheme to address any potential interference issues.

An efficient licensing process needs to be implemented for both metropolitan areas (where further infills are expected to be deployed in the future) and regional areas where infills may potentially serve as a way of enhancing digital radio services over time.

The requirements in the TPG for the licensing of additional transmitters is not necessary in light of the technical requirements that already apply under the TPG, the Digital Radio Channel Plan and the licence conditions set out in the Radiocommunications Act. For example, issues such as adjacent or co-channel interference are already comprehensively addressed in the TPGs. It is unclear why additional licensing requirements are needed in the context of a SFN where licensees are already required to comply with the interference management provisions of the TPGs.

A more holistic and systems-based approach to licensing should be applied to Digital Radio Main Transmitter (DRMT) licenses. CRA believes that apparatus licenses should be broad enough and flexible enough to capture the addition of any repeater/infill transmitters that are built over time, as long as the new transmitters comply with all relevant laws (e.g. apparatus, broadcasting, technical planning, etc.), the Digital Radio Channel Plan and the terms and conditions of the main DRMT licence.

Finally, the subsidiary and other guidance documents that support the licensing regime in the Radiocommunications Act and the Broadcasting Services Act should also be reviewed to remove any outdated or unnecessary requirements. There remain a number of outdated technical materials in supporting documents, which should be updated to reduce the regulatory red tape currently impeding DRMT activities. For example, the TPGs currently contain outdated information (e.g. provisions in relation to analogue  $TV^3$ ) that unnecessarily complicate and confuse other requirements that remain pertinent to digital radio services.

While a significant portion of the metropolitan infill rollout is now complete, additional infills may be required in the future to further improve coverage in metropolitan areas and to potentially support the delivery of digital radio services in regional areas.



<sup>&</sup>lt;sup>2</sup> Section 207(b), *Broadcasting Services (Technical Planning) Guidelines 2007.* 

<sup>&</sup>lt;sup>3</sup> For example, see: Part 5, *Broadcasting Services (Technical Planning) Guidelines 2007*.

# 2. Should the provisions concerning the commencement of digital radio services be modified or removed, allowing broadcasters to commence services whenever they wish (subject to spectrum planning considerations)?

CRA supports the launch of DAB+ digital radio services in Canberra and Darwin, and separately in regional areas, on a uniform basis. In particular, there should be a single DAB+ digital radio start-up date for regional services, with this date being the date on which all broadcasters commence providing digital simulcast services. Put simply, broadcasters, listeners and key stakeholders need clarity and certainty about the timing of the commencement of simulcast digital radio services, including in regional areas. For example:

- given the use of a shared platform to deliver DAB+ digital radio services and the individual costs incurred by broadcasters to deliver services, a launch date for the platform and initial simulcast services will be needed to support project planning, funding, procurement and the rollout of infrastructure and services by the multiplex operator and individual broadcasters;
- as new content for additional channels will take time to develop, it is important that simulcast services should be available from broadcasters at the time of launch of the platform;
- Iisteners need clear communication about the benefits of digital radio and access to adequate DAB+ digital radio reception and a wide range of affordable devices – these important elements will be difficult to co-ordinate and achieve in the absence of a collective industry launch date;
- retailers, receiver manufacturers and the automotive industry will need clarity about the start date of DAB+ digital radio services in regional areas for advertising, delivery and stock availability purposes; and
- Iocal members of parliament will need clarity for the purpose of informing their constituents about the launch of digital radio services in regional areas.

There are also operational aspects to consider:

- the shared transmission infrastructure for DAB+ means it is not practical for individual companies or broadcast sectors to individually decide their commencement dates – with a single shared ensemble for 18 services, communication, funding, operational and technical aspects will need to be jointly planned and potentially mandated as they have been for digital TV;
- there are potential interference aspects to be considered to avoid co-channel and adjacent channel interference as new ensembles come online - these can be reduced by planning a coordinated roll out which is best for audiences and most efficient in terms of the operation of the interference management of start-up transmissions, including repeaters; and
- streamlining the roll out is recommended as a most cost effective approach to avoid piecemeal planning, tendering and deployment.



## 3. Is the access regime established in Part 3.3 of the Radiocommunications Act operating effectively? Is the system of access undertakings working as it should?

CRA considers that the digital radio access regime in Part 3.3, Division 4B of the Radiocommunications Act is operating effectively on the whole. The existing access regime should continue in largely the same form as it exists today.

While the use of an access regime was a relatively novel construct for the broadcasting sector when it was first implemented in 2009, CRA considers that the existing access regime, which is implemented by the JVCs through an ACCC-approved access undertaking and access agreement, provides a workable approach to the delivery of multiplex capacity to both commercial and community broadcasters.

The ACCC approved access undertaking and access agreement:

- provides for a 'light touch' access regime relative to other regulated sectors, which ensures that the compliance burden for the JVCs remains proportionate;
- provides for commercial broadcasters and community broadcasters to receive access to multiplex capacity on non-discriminatory terms, thereby ensuring that all access seekers receive the same price and non-price terms regardless of whether they are shareholders in the JVC; and
- ensures that the JVCs costs are incurred prudently and that access seekers have reasonable visibility of price changes arising from a change in the JVC's underlying cost structure.

Further, the variation provisions under section 118NH of the Radiocommunications Act also provide both the JVCs and the ACCC with sufficient flexibility to adapt the access regime to take account of changes over time that impact the delivery of multiplex capacity.

This variation process was used by the JVCs in late 2013 to amend the access undertaking and access agreement to:

- address service changes associated with the upcoming launch of OCR services in metropolitan areas;
- to take account of operational experience that had been gained by the industry since the initial launch of digital radio services;
- allow JVCs to enter into new access agreements with commercial and community broadcasters; and
- remove outdated provisions which were no longer relevant to the industry.

Based on the above, CRA does not see an obvious need to make substantive changes to the operation of the current digital radio access regime at this time.

CRA would also support adapting the existing access regime for metropolitan areas for application to the provision of digital radio services in regional areas.





## 4. Should any of the provisions relating to the access regime be amended or replaced?

#### Auction of excess multiplex capacity not appropriate for regional areas

The Radiocommunications Act sets out standard access entitlements, which permit licensed commercial and community radio broadcasters to access a specified fraction of the capacity from the foundation digital radio multiplex licensee.<sup>4</sup>

The Radiocommunications Act also establishes a process for the auction of excess capacity access entitlements in circumstances where demand for such capacity exceeds supply.

The legislated auction process was successfully implemented in November 2009. All excess-capacity was sold in Adelaide, Melbourne, Perth and Sydney to incumbent commercial broadcasters who were each eligible to purchase the available multiplex capacity. Similarly, nearly all excess capacity was sold to incumbent commercial broadcasters in Brisbane, with only 128 kbps remaining unallocated.<sup>5</sup>

As noted previously, CRA's preference is to avoid the requirement for a mandatory auction process in relation to excess capacity in regional areas. Such an approach is unlikely to be appropriate or fair where commercial broadcasters are sharing the multiplex with public service broadcasters. Accordingly, CRA's first preference is to put in place an alternative scheme for the sharing of excess capacity between existing access seekers in regional areas.

However, if an auction process is to be used for regional areas, we consider that there are some areas for improvement based on our experience with the auction process in metropolitan areas.

In particular:

- the requirement for the foundation digital radio multiplex transmitter licensee to establish and implement an open and transparent auction process within 60 days after ascertaining that demand exceeds supply is unreasonable. The design and implementation of a spectrum auction is not a trivial undertaking and placed a significant burden on CRA, the JVCs and its advisors. It requires the commissioning of experts to determine an optimal auction design, economic experts to set the reserve price and a range of legal documents to be developed.
- Imposing a similar timeframe on regional broadcasters is likely to present even more difficulties than was the case for metropolitan areas.
- To this end, CRA recommends a period of 6 months from the digital radio start up day for the completion of any required auction process; and



<sup>&</sup>lt;sup>4</sup> See sections 118NQ, 118NR and 118NS, *Radiocommunications Act 1992*.

<sup>&</sup>lt;sup>5</sup> See: ACMA, *Digital Radio Rollout* available at <<u>http://165.191.2.87/Industry/Broadcast/Spectrum-for-broadcasting/Broadcast-planning/digital-radio-spectrum-for-broadcasters-acma</u>>

# 5. Are the reasons for a moratorium on new licence area planned commercial digital radio licences still valid? Should the moratorium, which is due to expire on 30 June 2015, be extended or discontinued?

CRA considers that there is merit in extending the existing moratorium for a period of years..

While the take up of digital radio services has been strong, further work needs to be done to ensure the viability and profitability of digital radio services for the future.

That viability is likely to be significantly undermined if new entries are allowed that bear none of the analogue costs borne by incumbent broadcasters.

This would place significant pressure on the business models of incumbent broadcasters which continue to face significant costs for analogue, digital and streaming.

Commercial radio broadcasters are making significant investments to attract and retain audiences by delivering free to air radio services across multiple platforms.

Over recent years, radio has evolved to become a medium which is compatible with and complemented by the alternative delivery models, such as digital radio and the internet.

This multi-mode environment has resulted in substantial additional costs on broadcasters which are not off-set by any additional revenue.

More importantly, digital multi-channelling and a converged environment by its nature results in a more competitive and diverse media landscape.

As a result, the argument for awarding new entrant digital broadcast licences in addition to those already allocated to analogue licence holders has been significantly weakened.

As Figure 4 graphically demonstrates, with the advent of DAB+ digital radio broadcasting the number of individual broadcast radio services in metropolitan areas has increased significantly as a result of the technology's capacity to multi-channel.

With a clear commitment from Government to extend the existing moratorium, it is expected that the diversity of radio offerings will continue to expand.

Along with the success of DAB+ digital radio, the phenomenon of convergence itself undermines the argument for a reduction in any of the current restrictions on entry for players to encourage a more competitive landscape.

With the increasing use of smart phones, tablet computers and other devices providing nonradio content online Australians are already able to access a vast and ever-growing quantity of alternative sources of local, national and international content.



It should be noted that incumbent broadcasters continue to

- > carry the cost of analogue and digital transmissions;
- generate and test new content and formats to establish viable business models for terrestrial digital radio;
- compete with an ever increasing number of streamed online music services which do not have to pay licence fees or abide by codes of conduct;
- promote the platform on analogue and digital services to ensure audience awareness and take up;
- invest in marketing and PR activities which encourage take up until there is sufficient audience on digital to make it profitable;
- > invest in improving coverage and reception through infill repeaters;
- invest in research and innovation to ensure the standards continue to evolve and chipmakers, manufacturers and infrastructure providers continue to evolve to support broadcast innovation;
- invest in research to ensure a comprehensive and cost efficient DAB+ digital radio network is planned for regional centres;
- all this investment will provide a far greener future for broadcast radio, with significantly lower operational costs for the public broadcasters that Government funds.



### Part 2: Restricted datacasting

#### 6. Should there be any changes to the initial restricted datacasting framework?

Please see comments under Question 7 below.

## 7. Given that the ACMA has not issued any restricted datacasting licences, is there any future for such services?

CRA considers that the benefits of restricted datacasting services are likely to be limited going forward and are unlikely to justify the maintenance of the initial restricted datacasting framework.

Firstly, as DAB+ digital radio services have now been deployed extensively in capital cities by commercial, public service and community broadcasters and excess capacity access entitlements have now been exhausted in all capital cities except Brisbane, there is little, if any, multiplex capacity to be allocated for this purpose.

Similarly, if CRA's proposal of a shared multiplex between commercial and public service broadcasters is adopted in the vast majority of regional areas, multiplex capacity is also likely to be extremely scarce in those markets.

Secondly, as demand for restricted datacasting services appears to be non-existent it is difficult to see the benefit of industry participants incurring additional infrastructure build costs for demand that is unlikely to materialise.

Accordingly, CRA would support a review of the merits of maintaining the existing restricted datacasting licensing framework.

## 8. How can restricted datacasting be made more attractive to new entrants to the market?

As noted above, there are significant constraints on the potential emergence of restricted datacasting services in the capital cities and regional areas, including limited capacity and a lack of obvious market demand for such services.

#### 9. Should there be additional spectrum allocated for restricted datacasting services?

CRA considers that additional spectrum should not be allocated for restricted datacasting services for the reasons noted above.



# Part 3: The Technological Environment and Audience Profile

# 10. What is your assessment of the trends in digital terrestrial radio technology? Does the overseas experience with these technologies have anything to teach us about their merits and appropriateness in the Australian environment?

Terrestrial broadcast radio remains at the core of radio distribution around the world. An enormous range of technologies complement broadcast radio and strengthen its connectivity to and engagement with audiences.

Terrestrial broadcasting remains core to the delivery of radio services as it not only harnesses new technologies but because it remains

- ubiquitous and affordable;
- $\succ$  free to air;
- simple to use;
- reliable and robust;
- live and local;
- important to the local community.

The DAB+ family is the most widely adopted digital radio standard. DAB+/DAB/DMB is on air in nearly 40 countries and is popular because it:

- > is an open standard with no annual licence fees paid by broadcasters;
- > allows AM and FM broadcasters to move to a common digital platform;
- is proving to be far greener and more cost effective to build and operate than any other analogue or digital radio standard ;
- > does not interfere with the analogue host service and is not operated in hybrid mode;
- does not need to be switched off at night to avoid interference to distant services on the same frequency;
- > allows broadcasters more capacity and listeners more choice and functionality;
- has the largest and most diverse range of low cost receivers;
- is the being integrated as standard by the majority of motor vehicles manufacturers worldwide.

The HD radio platform has still only been adopted by a limited number of the US's 12500 radio stations, requires an annual licence to be paid to iBiquity by broadcasters and still needs to switch off the MW digital transmissions overnight. There have been reported issues with interference to the FM carrier service when operated in hybrid mode.

30/05/2014 13:56

Page 16



ISDBT-sb is said to be making progress in Japan but as there is little information publicly available it is hard to assess how spectrally efficient it is for audio with limited metadata and also about how it performs in the complex mobile RF environment.

DRM is in its 25th year however there are only 5 receivers on its website (of which several are demonstrators), no countries have adopted the DRM+ standard although there have been trials dating back to 2010. Some international broadcasters use the MW DRM30 platform for part time transmissions and the roll out of DRM by the public service broadcaster in India is hampered by the lack of receivers and infrastructure equipment and is now under review.

Importantly, comparisons of capex and operating costs of establishing and operating typical systems in FM, DAB+ and DRM have found DAB+ to be 6- 13 times less costly than FM and 2- 4 times less costly than DRM+.



Appendix 1 – WorldDMB Country update shows the detailed status of DAB/DAB+ adoption in 32 countries across Europe, Asia Pacific and Africa.



# 11. What are your views about the impacts of Smartphone and other streamed audio services on the future of 'traditional' radio listening? What data do you have to support these views?

Time Spent Listening (TSL) to radio via a DAB+ digital radio device is more than 12 hours - nearly two and a half times that of TSL to radio via the internet.



Source: Nielsen Radio Ratings, time spent listening, average of 5 metro markets Mon-Sun midnight – midnight

Free to air DAB+ radio offers free to air digital quality audio, text, graphics and, in the future, broadcast URLs which will allow listeners to engage with broadcast content on a one-to-one basis.

This is in line with the recent arrival in Australia of streaming services which have generated significant hype:

- Pandora: Launched in Australia 2012.Plays songs according to a selection of genre or artist. Free with ads. Ad free version is available for \$US36 annual subscription, or \$US3.99 per month and includes higher quality audio quality than the free version. 1.5m users
- Spotify: Launched in Australia in 2012. Streams music on-demand. Free with ads. Subscription is \$11.99 per month (trial with no advertising), including the ability to download music and listen offline.
- iTunes Radio: launched in Australia 2014.Automatically plays songs based on a persons' song library and tastes. Free with ads. A \$34.99 annual subscription removes ads with a link to Apple's cloud music storage iTunes Match.
- > Deezer recently left the Australian market

30/05/2014 13:56

Independent research conducted for CRA by The Hoop Group in late 2013 examined the use of phones for radio consumption wherein respondents cited concerns about data usage and the drainage of the phone battery in relation to streaming radio.

Overall the majority of respondents to the 2013 Hoop Group survey stated that they believe they would benefit from having a DAB+ digital chip in their mobile phone. This figure has grown year on year, despite the launch of the streaming services above, up from 49% in 2011 and 58% in 2012.

In Australia, and much of the world, using spectrum efficient DAB+ technology would dramatically reduce data usage and network congestion as it has sufficient capacity to broadcast AAC+ audio, text, graphics, coupons and URL hyperlinks free to air. The listener then would only need to use their data to engage with elements of the broadcast content that interests them.

Broadcasters around the world are focussed working together to encourage the integration of DAB+ into smartphones and tablets.

In Korea LG and Samsung have already sold over 60m devices with DAB and T-DMB and Samsung S3 Galaxy has a DAB+ model which uses the Korean frequency raster.

Streamed content is far less green and less spectrum efficient to deliver than broadcast, and it is more expensive for both broadcaster and listener.



Bandwidth requirements increase or decrease with the number of listeners due to point-topoint delivery protocol.

This results in very high transmission bandwidth requirements for large numbers of listeners.

Example: 100,000 listeners @ 64kbps requires 6.4Gbps

30/05/2014 13:56

Page 19



- AAC/AAC+ streams are typically 64kbps
- MP3 streams are typically 128kbps (or higher e.g. Telstra's MOG)
- 100k listeners @ 128kbps (UK RadioPlayer) requires 12.8Gbps

Broadcast delivery could serve the same 100,000 listeners for 48-64kbps

The cost comparisons also show impact the profitability of any business that relies on streaming radio.

Using a typical talkback station with a daily cumulative audience (Cume) of 407,000 listeners, with a Time Spent Listening (TSL) of 3.5 hours per day = 1,424,000 listener hours per day or 1,247,000 GB / month.

If all of the station's audience listened via streaming, it is estimated that it would cost the station \$3,700,000 per annum which is highly inefficient when compared with DAB+ at an estimated \$18,000 (1 of 17 services on a DAB+ ensemble).

If we extend this comparison between DAB+ and streaming to the whole Sydney audience listening via streaming (approx 3.1M listeners (cume) the numbers increase significantly:

- 10,600,000 listener hours per day
- = \$25,071,000 per annum

Compared with the cost of DAB+ transmissions at approximately \$900,000 (for 3 ensembles, which includes <u>all</u> 52 commercial and national analogue and digital only services).



An estimate of the spectrum requirements for all Sydney radio to be delivered over a 3G network would require ten 3G channels per mobile cell, which is neither economically nor physically viable:

## Internet Radio – Mobile Broadband

| Sydney analysis<br>Using 64kbps for internet radio streaming  |        | Maxi<br>g (prob | Maximum number of 3G+ cells<br>(probably high) |                         |  |
|---|--------|-----------------|--|-------------------------|--|
| Total transmitted data rate in Mbps   |        |                 |  |                         |  |
| Number of mobile cells in Sydney  |        |                 |  |                         |  |
| Number of users   | 500    | 1000            | 2000   |                         |  |
| 1   | 0.128  | 0.064           | 0.032  |                         |  |
| 10  | 1.28   | 0.64            | 0.32   |                         |  |
| 100   | 12.8   | 6.4             | 3.2  | D                       |  |
| 1000  | 128    | 64              | 32   | Requires approx 1 x 3G+ |  |
| 10000   | 1280   | 640             | 320  | 2GB in the morning      |  |
| 100000  | 12800  | 6400            | 3200   |                         |  |
| 1000000   | 128000 | 64000           | 32000  |                         |  |
| ALL mobile phone cells are equally loaded Requires 10 x 3G+ channels per cell for <u>all</u><br>Sydney radio in the morning |        |                 |  |                         |  |

NOT PHYSICALLY or ECONOMICALLY FEASIBLE

This view is consistent with the findings of a White Paper independently developed in Sweden which investigated the feasibility of replacing terrestrial broadcast radio in Sweden with streaming on the Terracom network. The study draws the firm conclusion that cellular networks are not the solution for the future of radio delivery. The huge amounts of data, high costs and the difficulty with providing continuous universal coverage mean that mobile broadband does not offer a realistic alternative to terrestrial broadcasting. New streaming technology eMBMS) is unlikely to change this conclusion as it is designed to handle peak loads, but will not lower the cost or capacity needed.

The study shows that radio reaches 75% of the Swedish population every day (5.9m) with an average listening time of 125min/day. This equates to 270 billion listening minutes/year which is 10 times more than all the voice calls in Sweden.

In terms of capacity that equates to 190 000 Tera Bytes (TB) which is more than all the transferred data on all of Sweden's mobile phone networks in a year.

The cost comparison is between 80 and 40 times greater for streaming than broadcast: (Euro 860m for mobile compared to Euro 10-20m for terrestrial broadcast). Terracom estimate to get to 99.8% reach as radio is mandated to cover for emergency broadcasts in Sweden an additional €450 million would need to be spent on **each** of Sweden's four mobile networks to provide adequate power and redundancy.



For broadcasters, the streaming-only option is very expensive, and agreements would need to be in place with each network to operate LTE Evolved Multimedia Broadcast Multicast Service (eMBMS).

The radio service would only operate in a 4G coverage area, and would not necessarily be prioritised so reception of live services would be intermittent.

As not all people are connected to the internet, and those that are may not have connected devices in all their listening locations so would need subscriptions and a SIM for each connected device, streaming of radio as its sole delivery platform is not the optimum outcome good for the listener:

- not free to air so either the listener or the broadcaster must pay;
- > no listening outside the coverage of the Telco network or in Telco blackspots;
- in periods of high activity, delivery of an uninterrupted radio stream would be compromised;
- would quickly use up their data plan and drain the battery if only a phone handset was used and connected to devices wirelessly.

CRA and its members are aligned with broadcasters all over the world in the view that radio has a hybrid future, but with terrestrial broadcast at its core and IP connectivity offering the one-to-one personalisation and response and streaming as an adjunct and complement to the main broadcast delivery mechanism.



### 12. Given its importance in the radio listening environment, what digital radio technologies are likely to be adopted by car manufacturers in the short to medium term?

There are increasing announcements from the automotive industry supporting DAB/DAB+. The following brands already offer digital radio in Europe:



30/05/2014 13:56



Page 23





In Australia, with in car listening at 36%<sup>\*</sup> of all listening there is still room for significant growth in the new car and aftermarket fit options. An announcement of Government commitment to a national rollout is needed to provide the car manufacturers with confidence that DAB+ will be offered in major population centres, towns and cities and on major highways and arterial roads. Tunnel operators would also look to the take up of digital radio in car before upgrading their in-tunnel repeaters to DAB+. The success of digital radio in the 5 metropolitan capital cities and the industry's willingness to invest in regional trials to continue developing the DAB+ platform has encouraged automotive brands to support DAB+ digital radio in Australia and growth is rapid. Information provided to CRA for the 2014 Digital Radio Industry Report indicates that it is likely that the sales of new cars with DAB+ as standard or an option is likely to be triple the number of units sold in the previous year.

DAB+ digital radio in Australia is:

- standard in the Toyota Camry Atara SL, Hybrid HL, Aurion V6 Presara, Prado VX, Lexus GS, Rx and Lx ranges. Lexus announced recently they have sold more than 8000 DAB+ enabled vehicles
- standard on Audi models S6, S7, RS 6, RS 7, A8
- > now available as an option on Audi models A4, S4, RS 4, A5, S5, RS 5, A6, A7, Q5, Q7
- > DAB+ is now supported in a significant proportion of BMW vehicles
- > offered virtually across Mercedes entire model range.
- as standard on Ford Kuga, Hino 300, 500 and 700 series as well as Fuso trucks and buses and Isuzu trucks.
- > an option in some new Land Rover and Jaguar models
- immediately available on brands like Volkswagen, Skoda, Volvo, Ford, Nissan and others in Europe and in Australia in the future.
- available in a range of aftermarket radios from Alpine, JVC, Kenwood, Orion, Pioneer, Sony and Pure.

Further rapid deployment of multi-standard automotive solutions will follow with recent announcements of support for DAB+ by STMicro and Panasonic Industrial Devices Europe GmbH, and with Visteon and other leading OEM suppliers of automotive chips and modules committed to the standard.In Australia, just as in Europe, the focus is to get DAB+ digital radio into vehicles. Given the price sensitivities and complexities of technologies already being integrated and the need for continued support for AM in Australia, it would be counterproductive to expect automakers to support multiple digital radio standards at this time. In the UK, 40% of new cars have DAB/DAB+ digital radio as standard and do not support any other digital radio standard.



### New cars with digital radio



13. What impact, if any, will the intent of several car manufacturers to install internetconnected entertainment systems have on the future of digital radio?

There are now, and always have been multiple sources to access news, information, entertainment and navigation in vehicles. Radio has been in car alongside tapes, CDs, DVD and Blu ray players, iPods, USB/aux in, Personal Navigation devices and more recently Bluetooth connectivity.

The connected in car entertainment systems aim to extend to the car the connectivity of the various other screens in our lives – phones, tablets, laptops, home entertainment systems, smart TVs and so on so the listener can easily stay connected throughout the day.

The announcement earlier this year that Google has joined with automotive and technology leaders Audi, GM, Honda, Hyundai and Nvidia to form the Open Automotive Alliance (OAA), to accelerate auto innovation on open platforms is yet another key driver for DAB+ digital radio capability s to be included.

Connectivity only strengthens radio's place in the car, as it allows the user to interact with broadcast content safely. Connected services will not replace broadcast radio as these services are only as good as the mobile data coverage and capacity available.

WorldDMB is the global standards body for DAB+ radio.

All parts of the supply chain for in-car radio are members of WorldDMB, the global forum for the promotion of the DAB/DAB+ standards for radio.

This includes major OEM suppliers Visteon, Fujitsu Ten, Mitsubishi Electric, Johnson Controls, Continental, Bosch, Alps, Harman/Becker, Hirschman Car Communication, Magneti Marelli S.p.A and Alpine Electronics R&D.

Also active WorldDMB members are chipmakers NXP, Silicon Labs, STMicroelectronics, Keystone, Telechips, Texas Instruments, Frontier Silicon and Imagination Technologies, and car manufacturers Land Rover/Jaguar, Hyundai, Daimler, Audi Volvo, and aftermarket providers TechniSat Digital, Mobis, parrot, Clarion Pure and JVC Kenwood and others.

These companies have supported the rapid roll out of free-to-air DAB+, even if some of them also include apps for streamed content.



It is important that the realities of the connected car and its potential to deliver streamed infotainment are also clearly understood:

- a. the mobile phone network does not cover effectively the same area as broadcast. This is particularly the case in regional areas where the mobile network coverage can often quickly disappear once leaving a town or main highway;
- b. mobile phone networks in regional areas are often lower level technology, e.g. GSM or 3G instead of 4G/LTE and hence have lower capacity making them unable to cope with the demands of real time streaming without significant dropouts. Using the Blue Mountains as an example, there are significant areas lacking coverage along the Blue Mountains and no coverage for some networks of most of the inland.
- c. This lack of reliable and robust coverage is a significant disadvantage to regional listeners.
- d. Broadcast radio provides a far better coverage footprint than mobile and hence provides a much more reliable service.
- e. when using mobile phones as the connection device, which is by far the most common connection method, there is reduced signal strength due to the influence of the metal structure of the car. This includes metallic window coatings. Similarly plastic and composite parts often have metal coating which produces a Faraday Cage effect which significantly reduces the signal strength inside the vehicle. Conversely, the addition of the metallic coating to vehicle roofs which are made of composite materials will provide a ground plane to ensure external broadcast antennas and receiver operation similar to that of metal roofs;
- f. there are significant coverage issues. The Federal Government has just allocated \$100m in an attempt to fix mobile phone coverage blackspots in regional Australia. This sum would need to be substantially increased to deliver capacity and coverage for radio streaming in line with the quality of service expectations of regional audiences. More importantly, there are important safety considerations for people travelling in poor reception areas if they rely solely on mobile apps for in car information and coverage is poor;
- g. there is ongoing debate as to who pays for in car mobile connectivity and what charge, if any, is acceptable. The answer to that obviously varies with the manufacturer and the user. Radio remains free to air and will not be part of this debate;
- h. car makers want global solutions, so it becomes a challenge to pick which app to support in vehicles – Pandora and Spotify are popular streaming services, but not available in many markets; Aha radio is available on some receivers here.



In conclusion, IP/internet based radio services are complex and have the potential to augment broadcast radio but are unlikely to replace broadcast radio for the foreseeable future.

Robust transmission networks are essential for delivering local radio content in real time to tens/hundreds of thousands, or, millions of listeners live at the same time. These mobile networks do not yet exist and currently streamed content needs significant buffering to avoid drop outs.

14. If you import or sell receivers, are you aware of any new developments which may have applicability in the Australian market? If so over what timeframe?

The industry has had a successful, well planned and coordinated approach to marketing the platform and works closely with the receiver manufacturers and retailers to ensure consistency of message as well as promotional activity around key trading periods like Father's Day, Mothers' Day and Christmas.

CRA works closely with the Australian retailers, global radio manufacturers and standards organisations on all aspects of receivers including:

- testing new receivers of all types including automotive aftermarket and factory fit. The testing generally covers functionality and fitness for purpose and can include RF performance for some car products;
- marketing and promotional support including the on-going activities of the Retailers, Broadcasters and Manufacturers Advisory Group. This group was instrumental in the initial introduction of DAB+ radio products into the retail market and continues to support the industry including providing advice on new features and standards;
- promotions and events with leading receiver manufacturers to market DAB+ digital radio products and increase take up, e.g. outside broadcasts and retail sales campaigns;
- participation in working groups and taskforces with standards organisations to improve standards, add new features and encourage the inclusion of DAB+ functionality in a range of products.



WorldDMB and ETSI

WorldDMB is responsible for the maintenance and enhancement of the DAB family of standards (DAB/DAB+/DMB) WorldDMB publishes the DAB/DAB+/DMB standards through the European Telecommunications Standards Institute (ETSI).

See <u>www.worlddab.org</u> and <u>www.etsi.org</u>

- CRA was instrumental in the development of the DAB+ standard in 2007 and is involved with many new and enhanced feature definitions such as:
  - Hybrid radio functionality
  - Enhanced SlideShow capabilities such as Categorised Slideshow
  - FileCasting capabilities
  - Emergency Warning System enhancement

Universal Smartphone Radio and iDAG Projects

- USP project has members from Europe, USA and Australia and is focused on the integration of digital radio standards in Smartphones.
- > CRA has representatives on both the Strategy and Technical groups.
- Through USP and iDAG, CRA is actively promoting DAB+ capabilities in Smartphone's with Australian telecommunications operators including Telstra, Optus and Virgin Mobile.

#### RadioDNS

- RadioDNS is an international organisation which promotes methods for Hybrid Radio operation.
- CRA is a member of the steering board

The Australian radio industry is connected with broadcasters internationally and continues to innovate to ensure that broadcast radio remains relevant.

While Australia has rolled out DAB+ in metropolitan cities using industry best practice and boasts one of the quickest take-ups of any new technology we are now in danger of falling behind due to the delayed deployment of DAB+ in provincial and regional areas.

The lack of policy and planning is a clear concern to many retailers and very importantly the car industry.

It is very important that there is a clear policy and rollout timetable for regional Australia to ensure ongoing confidence in the sector and allow all Australians to benefit from affordable digital radio.

Having the other half of Australia included will boost sales and will assist retailers through increased sales volumes to provide reductions in the price of DAB+ receivers as they become ubiquitous.

The deployment of DAB+ in regional areas will be of great benefit to listeners and allow them to enjoy the significant service improvements that metropolitan listeners have.



15. Given its ability to cover large geographic areas, do you think satellite radio may have a future in Australia?

Satellite radio has been discussed for many years and has been tried in many countries and in general it has not been a huge success. In the USA it has struggled even after the merger of Sirius and XM in 2008 and still only has 24m subscribers after almost 12 years of operation; that is just over 6% of the USA population. This can be compared to DAB+ in metropolitan Australia which achieved a 15.2% penetration of Australian households in the first 4 years. Satellite radio was turned off in Africa and Asia with the collapse of WorldSpace in 2010.

Major issues with Satellite radio are:

- It is generally subscription this is due to the high cost satellite construction, launch and operation as well as the deployment and maintenance of a large terrestrial repeater network. Sirius and XM spent over \$3B deploying their initial satellite based networks, current subscriptions fees start at \$7.99 per month and are more typically \$12.95 per month. – see <a href="http://en.wikipedia.org/wiki/Satellite\_radio#Africa.2C\_Asia\_and\_Europe">http://en.wikipedia.org/wiki/Satellite\_radio#Africa.2C\_Asia\_and\_Europe</a>
- It generally requires receivers to have outdoor antennas to ensure in-home operation, e.g. in city areas, the installation of outdoor antennas can be costly and means that radio units are fixed and not portable.
- It requires terrestrial repeaters to operate in cities due to satellite signal shadowing. Sirius has over 1500 ground repeaters in the USA with many having ERPs over 5kW and some over 20kW – see <u>http://www.dogstarradio.com/sirius\_map.php</u> This may be compared with the results of the CRA study into regional DAB+ deployment where it was estimated that to cover all cities and towns with greater than 5000 population less than 500 transmitters and repeaters will be required at a significantly lower cost.
- Once DAB+ coverage is rolled out, the industry would consider satellite as one option for remote coverage; but there are substantive issues to consider around the broad footprint of a satellite like VAST, compared to the LAP approach to radio.

In summary, DAB+ is a much more cost effective and future proof technology with which to provide digital radio services to regional Australia. To cover the metropolitan DRCPs DAB+ uses a single high powered transmitter with a number of very low powered infills or repeaters.

16. Have you conducted or commissioned any research into digital radio audience figures or the demographics of digital radio listeners since digital radio services commenced in 2009? If so, what are the current and projected audiences for digital radio?

CRA has tracked the household penetration of digital radio in Australia since launch and it is undoubtedly one of the fastest technology take ups, beating even PwC forecasts.

PricewaterhouseCoopers (PwC) has updated their forecast of household penetration of DAB+ from 16% of all households by 2014 (forecast in December 2009), to 16% by 2013 and 18% by 2014.





#### Actual diffusion path of DAB+ compared to other technologies

Source: Ironmonger, C. Lloyd-Smith and F. Soupourmas 2000, 'New products of the 1980s and 1990s: The diffusion of household technology in the decade of 1985-1995', Prometheus, vol. 18, no. 4, pp. 403-415; PwC analysis

PwC found that cumulative sales suggest that DAB+ technology was in approximately 9.3 percent of Australian households at March 2012 just 2.5 years after launch. Early indications showed that the actual diffusion path taken by DAB+ would outperform their November 2010 forecast.

Later in 2014 CRA will release an updated PwC figure which includes car sales.

#### Digital radio listening

The highest ever digital radio listening figures were recorded by the official Nielsen radio survey results for metropolitan in the five state capitals at the end of last year with DAB+ radio listening in Australia reaching a high of nearly 13% or more than 1.6 million people listening each week and the number of digital radios sold continues to rise.

Digital radio listening figures from Survey 8, 2013 show that close to 1.7 million people or 13.3% of radio listening each week in the five state capitals is via a DAB+ device.

Time Spent Listening (TSL) to radio via a DAB+ digital radio device was 12 hours, more than double that of TSL to radio via the internet which remains at just over five and a half hours.

17. Have you conducted or commissioned any research into the growth in streaming radio services across online platforms and connected devices including mobile phones, tablets or desktop computers? If so, what are the current online radio audience figures and the demographics of listeners? Do you have any research on the projected growth of these digital radio technologies?

CRA has not undertaken specific research into this issue.

However, as part of the official radio audience survey measurement surveys, platform of listening information has been collected for the past few years in terms of *how listened*, that is, via an analogue radio, a DAB+ device or online.

The official surveys show that after only 4.5 years on air, total listening hours on DAB+ are two and a half times the listening time on internet, which has been available for much longer.



### Part 4: Spectrum & licensing

## 18. Are there alternative allocations of spectrum the Government could be considering for terrestrially based digital radio?

Given the tight allocation of 14MHz for DAB+, the ACMA should be directed not to allocate any unused Band III in regional Australia until a detailed regional digital radio channel plan is complete.

VHF Band III is the optimum spectrum for the roll out of DAB+, a conclusion agreed on by most jurisdictions planning DAB+ around the world.

However there is an ITU allocation of 1452-1492MHz in the L-Band which has been reserved internationally for DAB/DAB+ digital radio.

This allocation of L Band spectrum should remain reserved in Australia until detailed coverage and capacity planning for regional DAB+ rollout on Band III is complete and its role in low powered infill sites is determined. The allocation should remain until a review of areas not covered has been undertaken, timing is agreed and it is clear whether the full allocation of L-Band will be needed for regional digital radio services.

# 19. What has been your experience of the establishment and operation of a digital radio multiplex? Are there alternative arrangements for sharing multiplexes which would be more efficient, particularly in regional areas, where there are generally fewer services than in metropolitan areas?

Digital radio is a whole new way of working for broadcasters who have not previously shared infrastructure on this scale.

Initially, time was needed for the establishment of the JVCs to own the spectrum licence and transmission equipment. Large scale tender processes were conducted by CRA on behalf of the JVCs and CRA initially acted as agent to the companies until their legal status was established.

The five metro JVCs are controlled by an individual Boards comprised of representatives of the shareholder broadcasters. The JVCs now have third party operational contractors, rather than individual broadcaster control. Lease agreements have been jointly entered into and day to day operation and monitoring is handled by contracted operations managers.

New control measures have been established which limit remote access to transmitters to a single point of contact - individual broadcasters have *viewer* access but cannot change settings on the shared multiplex equipment.

CRA has observer status on the JVC Boards.

An ACCC access agreement has been established for each of on the commercial/community multiplexes.

Trial activities in Canberra and Darwin are providing useful technical and operational insights into the issues and opportunities of sharing multiplexes with the SBS and ABC.

A legislative scheme for digital radio in regional areas has still not been developed. This remains a key obstacle to the rollout of DAB+ technology to Australians living outside of the existing five metropolitan areas (i.e. Adelaide, Brisbane, Melbourne, Perth and Sydney).

Any legislative framework which is developed for regional Australia should seek to:

- deliver digital radio services on an expedited basis to address the current digital divide that exists between metropolitan and regional areas;
- minimise the costs for all industry participants, including both the owners of the multiplex infrastructure and access seekers; and
- provide for the sharing of infrastructure to the maximum extent possible, including between the commercial sector and public service broadcasters to reduce and contain costs.

Given the Band III spectrum currently allocated for regional DAB+ services, it will be necessary and more cost effective in the majority of regional licence areas for commercial and public service broadcasters to share a single ensemble.

CRA has obtained in-principle agreement from commercial broadcasters in regional Australia to share the infrastructure with the public service broadcasters in each market.

Under CRA's proposal, the commercial radio and public service broadcasters' services can be rolled out at the same time for a single cost in most regional licence areas using just one transmission system/multiplex. This will avoid the unnecessary duplication of infrastructure in regional areas to the benefit of all parties, which in turn will minimise costs.

Such an approach will also address some of the issues that have arisen in metropolitan areas as a consequence of having separate multiplexes for commercial/community broadcasters and public service broadcasters, such as the inability for the ABC and SBS to invest in infill services as a means of improving reception black spots.

Access to the ensembles for regional Australia can be regulated pursuant to an access regime administered by the Australian Competition & Consumer Commission (ACCC). Such a regime will ensure that all access seekers on the multiplex, regardless of whether they are shareholders in the joint venture company, can obtain access to multiplex capacity on non-discriminatory basis. This access regime can be broadly modelled on the regime which currently applies to foundation category 1 digital radio multiplex transmitter licensees in metropolitan areas.

A review of the operation of the shared multiplexes can occur after the first Phase is complete.

Federal funding has been provided to the public and commercial television operators to rollout and operate free to air digital TV services in regional Australia in various schemes since 1998.

Given the much smaller revenue base in the vast majority of regional radio areas, the radio industry is seeking the same commitment to developing a digital future for regional radio operators as has been provided on an ongoing and long-term basis to regional TV operators.

It is also important for the ongoing viability of the commercial sector that the some level of proportional representation of broadcasters in each regional licence area is maintained.

30/05/2014 13:56

Page 32



To this end, CRA proposes that existing commercial broadcasters in each regional licence area be allocated a minimum 128kbps per current analogue service and have the option to take up to, but not exceed 50%, of the multiplex capacity shared amongst the incumbent analogue commercial licensees.

Where excess capacity exists, CRA proposes that:

- > this capacity be shared evenly between all broadcasters on the multiplex; and
- a legislative authorisation for the purposes of section 51(1) of the Competition and Consumer Act 2010 (Cth) be included in the Radiocommunications Act in respect of such conduct, if deemed necessary.

A mandatory auction process, as was the case in metropolitan areas in respect of Channels 9A and 9B, would not be suitable where public service broadcasters are also access seekers on the multiplex.

# 20. Is the current regulatory and technical framework for digital radio best suited to providing digital radio in regional and remote Australia? What mix of features (for example, range of services, signal/population coverage) are desirable?

The current regulatory and technical framework for digital radio is broadly well suited to providing services to population centres over 5000 and along main arterial roads.

When planned properly, it provides a greener and more robust transmission infrastructure than FM.

CRA believes that once Phase 1 regional rollout is complete, or during its final stages, a review should occur of available technologies and how they may best be applied to remote areas and population centres under 5000.

The needs of low power or localised community stations may also be taken into account in this review.



### Green & cost effective future for radio broadcasters

DAB+ digital radio allows the Australian radio industry to contribute substantially to a reduction in Australia's greenhouse emissions.

The roll out of DAB+ digital radio and over time and an agreed switch over from FM for the majority of incumbent high powered commercial and public service broadcasters will provide new, greener transmission infrastructure in regional Australia.

In particular there are drastic cost reductions using DAB+ compared to FM for areas which have 18 or more services:

- for metropolitan sites
  - DAB+ Opex costs approx 1/12 of FM
- for regional sites
  - DAB+ Opex costs approx 1/9 of FM
- for owned and self operated sites
  - DAB+ Opex costs approx 1/6 of FM

Even if DRM+ were to be considered for regional, which it is not currently, there are substantive efficiencies of using DAB+ over DRM+:

- for metropolitan sites
  - DAB+ Opex costs approx 1/4 of DRM+
- ➢ for regional sites
  - DAB+ Opex costs approx 1/3 of DRM+
- for owned and self operated sites
  - DAB+ Opex costs approx 1/2 DRM+

#### Source: Harris Broadcast, 2014

These huge savings result from efficiencies of digital technology over analogue and of the DAB+ technology over the DRM+ platform as an alternate approach being suggested by some.



#### 30/05/2014 13:56

Page 34



#### Source: Harris Broadcast, 2014

In Australia, where energy prices are double the USD.15/kWh on which the modelling was based, the savings could be as high as \$6.6m per ensemble of 18 services.

Across Australia, CRA's regional rollout plan proposed there be an estimated 150 ensembles resulting in a potential AUD \$900m energy saving for Government and industry over 10 years.

If only public service broadcaster energy costs were saved the Government would get a minimum saving after a future FM switch over of \$300m over 10 years or \$30m per year.



### **DAB+** infrastructure

#### Investment in Australia's critical infrastructure

Regional deployment of DAB+ digital radio represents a major upgrade of critical communications infrastructure. AM transmissions are under pressure from white noise associated with greater interference caused by modern communications equipment, particularly in built up areas. This upgrade will provide regional Australian cities with clearer, cleaner, and more robust access to free to air broadcast radio. FM transmissions are subject to the effects of multipath disruption, whereas DBA+ digital radio uses these multiple paths to buffer received packets within the radio. DAB+ Digital radio can share an upgraded digital antenna with digital TV. Roll these out alongside the spectrum restack program may be a cost efficient approach worth considering.

#### **Digital main sites**

Australia has the highest powered DAB+ transmitters in the world.

Metropolitan cities were planned at a time when analogue TV was still on air in adjacent channels and other broadcasters were using the same channel in next adjacent markets. These required significant compromises in the antenna design and build of the main sites and the need for on channel repeaters to fill areas of poor reception or no coverage.

The main site infrastructure is co-located with analogue and digital TV to minimise interference. Polarity discrimination was planned to provide greater protection, (TV is mostly horizontal and radio vertical), but the significant notches in DAB+ antenna patterns to protect other licence areas or services has complicated the initial infrastructure build and careful planning as part of the digital restack will need to avoid these issues for cost effective regional roll out.

#### **Digital infills**

The commercial radio industry has funded the test and development of new approach to infills, specifically a DAB+ On-Channel Repeater (OCR) solution to fill black spots in digital radio coverage from the main DAB+ transmitter including boosting localised DAB+ inbuilding reception.

The industry is rolling out sixteen repeater sites across the five metropolitan markets. This investment comprises close to \$4million in capital expenditure and also entails substantial operational expenditure each year.

CRA' foundation planning work for regional rollout has considered these in-fills in a regional context where the distances are greater and the terrain more diverse. There are a number of important questions still to be answered regarding the use of single frequency networks, including coverage and cost optimisation when using link fed repeaters or the more cost effective OCRs in the varied topography of regional Australia. The issue of adjacent channel interference has been explored in greater detail in the Canberra trial to improve understanding of the technical aspects and the potential costs of using link fed or OCRs to improve reception or extend coverage in regional Australia.

Given the distances of remote coverage, DAB+ is not being proposed as a suitable technology platform for remote LAPs. AM and FM services will need to be maintained in



these areas for the foreseeable future and as proposed a formal review to occur as the regional Phase One rollout proceeds.

### Digital radio is good for regional listeners

Broadcast is vital to providing a sense of community in regional areas and is still the most spectrum and cost efficient mechanism to serve regional audiences.

The investment in DAB+ digital infrastructure funding will provide regional listeners with access to digital radio services which currently only their metropolitan counterparts can receive.

DAB+ provides crystal clear sound, significantly more features and greater choice for regional audiences.

Enabling broadcasters to multichannel from the outset will allow localism and niche formats which offer choice to reflect community tastes and to feature special events. These elements of radio are fundamental to the industry remaining viable and relevant.

There is capability and capacity for new digital only stations on a shirt term basis.

These "pop up" stations could also be created to provide information to the community in the event of an emergency as was the case during the Queensland Floods when 4TAB put up a 24 hour channel dedicated to provide up to date information to the community.

### Diversity of services for regional markets

CRA considers it essential that sufficient capacity is allocated for a quality simulcast service and new digital only services with digital quality audio, text and slides.

There are now up to 32 DAB+ only digital only broadcast services in each metropolitan market which demonstrates a significant investment in new content by radio broadcasters in the first 4 years since launch. T

his did not happen for digital TV but has proved to be a key driver, along with improved sound quality, to the rapid adoption of digital radio in Sydney, Melbourne, Brisbane, Adelaide and Perth.

These DAB+ digital only services allow radio to better meet the needs of local and niche audiences. However there must be some protections put in place to maintain diversity and prevent domination of local markets by any broadcast sector.

It would also be worth considering maintaining even more diversity by looking to accommodate Racing Radio on the regional multiplexers



### Regional stimulus from digital radio

DAB+ digital radio will result in a significant upgrade to existing towers and site infrastructure in regional Australia. Local technicians and trades will benefit from the build of associated transmission and infill equipment.

The rollout of DAB+ digital radio in regional Australia will involve building integrated digital radio multiplexes with new broadcast antennae and transmission equipment in each of the 98 regional licence areas, and smaller infill transmissions to ensure consistent reception across the population centres of regional licence areas, allowing these communities access to digital radio which is currently enjoyed by a potential audience of more than 12 million people in mainland state capitals of Australia.

Regional studios and production houses will need to upgrade to digital equipment and up skill to digital content creation.

Employment opportunities will be created during the construction phase of the project for rigging, communication links, hardware suppliers and electrical trades.

The rollout will result in a much needed upgrade of major communications sector critical infrastructure in regional centres, ensuring better emergency information can be provided by broadcasters during emergencies.

New features for advertisers will ensure that radio remains a cost effective medium for the promotion of local businesses allowing broadcast of URLs, price points, pack shots and phone numbers to be displayed on a device screen.

Current technology under development in relation to interactive radio such as Radio Tag, expected to be deployed in 2014, will further increase radio broadcasters' ability to connect with listeners and provide state-of-the-art services to regional areas.

## 21. In order to maintain audio quality, should there be a mandatory minimum amount of bandwidth used per station?

There have been very few complaints on the audio quality and there is no universally agreed rate. DAB+ digital radio audio quality is usually better than free streamed audio services which appear not to have any minimum bitrate and are acceptable to audiences.

It is preferable to leave the market to decide the best trade off between audio quality and wider choice of content. Within the existing allocation for radio there are up to 2.5 times more stations for audiences to choose from on digital. If audiences don't like what they hear for any reason they will either provide feedback to the station or they chill not listen.

All incumbent analogue radio services from commercial, public service and wide area community broadcasters are on air in the metropolitan markets with up to 32 existing and new digital only services also being broadcast free to air in DAB+ in each city.



### NEXT STEPS

The Minister establishes a Digital Radio Planning Committee for Regional Australia to commence channel planning, detailed costing and development of a suitable regulatory framework

### Appendix A

# WorldDMB Global Update - Digital radio broadcasting using the DAB family of standards

#### **Global overview**

Digital radio is making significant advances across Europe. In the UK, Norway, Denmark and Switzerland, the standard is well established with household penetration<sup>1</sup> of at least 33% in each of those markets. Norway has become the first country in the world to set a date (2017) for Digital Switch-Over (DSO).

In 2011, the European market received a significant boost when Germany launched DAB+ services. The Netherlands launched national services in September 2013; and, in June 2014, France will launch DAB+ in Paris, Nice and Marseille. Italy has trial services covering 75% of the population with regular services launched in Trentino in December 2012.

Several other markets are now assessing whether to launch DAB+. These include Sweden, Belgium, Poland, Czech Republic, Austria and Hungary.

Figure 1: Digital radio in Europe





In Asia Pacific, a similar pattern is emerging. Australia successfully launched DAB+ in 2009 and was followed by Hong Kong in 2011. Several other markets, including Thailand, Malaysia, Indonesia and Vietnam are now investigating digital radio options. WorldDMB has organised workshops in each of these countries.

Australian companies Broadcast One, Omnicast, RFS, Lumina and ATDI Asia Pacific have supported the development work in the Asia Pacific and have been showcased to allow for business opportunities for these companies in large Asia Pacific markets.

Delegations from the Asia Pacific Broadcasting Union, Korea, Indonesia, Thailand have been hosted by CRA and have met with the ACMA, Department of Communications, TXA, BA, ABC, SBS and commercial broadcasters to understand the Australian model for DAB+.

Figure 2: Digital radio in Asia Pacific





Pan-European support for digital radio appears to building. The European Broadcast Union (EBU) has called for the adoption of digital broadcast radio across Europe<sup>6</sup> and for the inclusion of digital receivers in all radio devices<sup>7</sup>. At the same time, Government administrations are looking to build cross-border links to develop a European consensus about radio's digital future.

In November 2013, WorldDMB established a working group focused on Digital Switch-Over – the aim being to co-ordinate activities and share best practice. The first meeting was attended by representatives from the UK, Norway, Germany, Switzerland, Netherlands, Sweden and Denmark.

The following two sections gives an overview of the status of (and prospects for) digital radio in markets around the world. The first section covers Europe and the second covers the Asia Pacific region.

#### Europe

#### Established and new markets

#### United Kingdom: population 63 million

Current position

- National coverage of DAB: 94% of population (rising to 97% by end 2015)
- DAB penetration<sup>1</sup>: 46% of households
- Digital listening: 36% of total listening
- Cars: 44% of new cars have DAB (Dec 2013) up from 8% in Jan 2011

#### Prospects

• Government has stated "the future of radio is digital".

<sup>7</sup>Recommendation R138 <u>https://tech.ebu.ch/docs/r/r138.pdf</u>

<sup>&</sup>lt;sup>6</sup>Euro-chip initiative: <u>http://www3.ebu.ch/cms/fr/sites/ebu/contents/programming/radio/digital-</u> <u>radio/welcome-page/about-euro-chip.html</u>

- The criteria for setting a date for DSO are:
  - 1. Digital listening share to reach 50% of all listening hours
  - 2. Digital coverage for national services must be comparable to FM and local DAB should cover 90% of the population as well as major roads.
- Current trends suggest the 50% digital listening target will be achieved in 2016
- Following commitment to build 162 new transmitters for national services and 200 new transmitters for local services, coverage targets will also be achieved at this time.
- A possible target date of 2020 may be feasible

#### Norway: population 5 million

#### Current position

- First country in world to set date for DSO (2017)
- DAB penetration<sup>1</sup>: 39% of households
- Digital listening: 40% of daily listeners use digital platforms (up from 31% in Q4 2012)
- Rapid growth follows launch of new digital only station (P1+) in September 2013.
- 75% of the 20 most popular car models in Norway offer DAB as standard or optional. Over 360,000 car DAB radios have been sold.

#### Prospects

- DSO expected in 2017, subject to the following conditions
  - 1. Public broadcaster must achieve coverage of 99.5% by 2015. Commercial broadcasters on the national network #1 are required to reach 90% of the population
  - 2. 50% of daily listeners must use a digital platform in 2015. This does not specify market share of listening, but only reach. Currently this is 40%
  - 3. There must be reasonably priced, reliable in-car adaptors on the market by 2015.
  - 4. Added value for the listeners.
- If the conditions are not met in 2015, the switchover date will be moved to 2019
- Current expectations are that they will be achieved. Large scale roll-out of new transmitters is under way. New digital-only services are being launched and digital listening is growing rapidly. A range of automotive aftermarket products is available with more products coming onto the market in 2014.

#### Denmark: population 6 million

Current position

- Target date for DSO: 2019
- DAB coverage: 95%
- DAB penetration<sup>1</sup>: 37% of households
- More than 10% of radio listening is on DAB (Source: DR Media Research)

#### Prospects

- The latest parliamentary Media Agreement 2012-2014 stipulates that the FM band will close by the end of 2019 if at least 50% of radio listening is on digital platforms by that time.
- There is a plan to build a new regionalised multiplex for commercial radio launch date of January 2015. At the same time the national single-frequency DAB block now used by public service broadcaster DR may be swapped for two DAB regional frequency blocks presently employed for a single commercial multiplex.
- The proposed frequency swap will also mark the switch-over of all Danish DAB transmissions to DAB+. This increases the total transmission capacity of DR enough to migrate its nine regional FM-only stations to DAB, and allow the commercial multiplex to develop further.

30/05/2014 13:56

Page 42



#### Switzerland: population 8 million

#### Current position

- DAB coverage: indoor 95%; outdoor 99% all main tunnels fitted by 2016
- DAB penetration<sup>1</sup>: 33% of households
- Over 60 services available German, French and Italian
- Moving from DAB to DAB+
- Over 70,000 car DAB radios have been sold.
- Change from DAB to DAB+ underway, coverage of highway tunnels will be finished in 2013. SwissMediaCast AG introduced two new regional DAB+ digital radio networks on Jan. 1, 2014. The networks cover the Berne/Freiburg region and eastern Switzerland

#### Prospects

- Ofcom (regulator) has asked industry players to prepare plans for potential DSO
- In 2017, will decide whether all services should be DAB+

#### Germany: population 82 million

#### Current position

- Launched DAB+ in August 2011
- Combined coverage of the ARD (regional) and the national multiplexes is 83% of the area and 91% of the population
  - The ARD multiplexes cover 75% of the area and 86% of the population
  - The national multiplex currently covers 66% of the area and 80% of the population.
- Over 2,700,000 devices have been sold (including 700k automotive) and penetration<sup>1</sup> by household is 5% (Source: TNS Infratest).

#### Prospects

- Further rollout of transmitters planned for national multiplex
- Continuing marketing (including significantly increased activity in Nordrhein-Westfalen)
- Research project commissioned by BMWi currently under way regarding potential DSO scenarios

#### Netherlands: population 17 million

#### Current position

- Launched DAB+ in Sept 2013
- 26 national services: 17 commercial (8 digital-only), 9 from NPO (4 digital-only)

#### Prospects

- 2016: review on the development of digital radio
- Depending on success of digital radio, DSO is possible with potential date of 2023.
- Important indicators: >50% of the households own a DAB+ receiver and developments in other European countries.
- 2 national MUX, one public in DAB, one commercial in DAB+. All of the current national FM commercial broadcasters are now transmitting in DAB+.
- All new FM licenses contain a condition to broadcast on DAB+.

30/05/2014 13:56

Page 43



• In June 2013 the public broadcaster NPO, announced that it will accelerated build-out and increase the number of transmitters from 10 to 24 to achieve nationwide coverage by end 2013 The Dutch Public Broadcaster (NPO) is currently working to roll out phase 2 of its DAB+ network.

#### Malta: population 0.4m

- Nearly 40 services on the two national multiplexes which include unique digital only stations, MOT, EPG and DLS applications giving 100% coverage.
- By the end of 2012, over 25% of Maltese radio listeners were tuning in via DAB+.

#### Gibraltar: population 31,000

- DAB+ ensembles operate on Blocks 12B and 12C from December '12, allowing Gibraltar to switch off analogue television. 4 Simulcast DAB+ services from the public broadcaster are currently on air and population coverage is 90%.
- There are currently no plans to switch off FM radio in Gibraltar.

#### Emerging and potential markets

#### France: population 66 million

• DAB+ services will launch in June 2014 in three cities: Paris, Nice and Marseille.

#### Italy: population 61 million

- 64% of listening is in-car.
- Three trial national multiplexes are on air, plus three regular and six trial regional multiplexes. Coverage is 75% of the population.
- Regular services started Dec 2012 in the Trentino region.
- RAI is committed to roll out DAB+ over the next three years.
- Industry-funded heavyweight advertising campaign now under way to inform consumers, retailers, car vendors, car dealers and all stakeholders about digital radio.

#### Sweden: population 10 million

- Strong support for DAB+ from Government, public broadcaster and the two major private broadcasters (June 2013).
- A special advisor has been appointed by the Government to develop a potential launch plan.
- Today, January 2014, the radio industry awaits the commercial licenses to be issued (expected in Q1-2014) and the Switchover Plan to be put forward by the Digital Radio Industry Coordinator appointed by the Government (expected Q2-2014).



#### Poland: population 39 million

• Two regular multiplexes launched in Warsaw and Katowice in October 2013. There is also one trial multiplex delivering DAB+ services in Warsaw, Kielce and Szczecin.

#### Belgium: population 11 million

- Currently one layer in operation (two regional multiplexes for the Flemish and the French speaking parts of the country). There are currently 16 DAB services on air and population coverage is 95%.
- The next step is to achieve a public funding agreement for the technical DAB+ rollout, upgrade the RTBF DAB network to DAB+ to ensure deep indoor coverage of Brussels and Wallonia and to have a potential public launch in 2015.

#### Spain: population 47 million

• A total of 18 DAB audio services are on air. Population coverage is currently 20%.

#### Ireland: population 4.6 million

- National Public Broadcaster RTÉ operates a full-service Multiplex covering 52% of the population in the main cities.
- Two commercial trials are operating in Dublin, Cork and the South-East of the country.
- Over 400,000 devices have been sold to date and penetration by household is 12%.
- Legislation has been in place since 2009 to enable commercial broadcasters to engage with DAB but the broadcasting regulator has not addressed the issue of establishing a regulatory framework to date. It is expected that Ireland will adopt the DAB+ standard.

#### Czech Republic: population 11 million

• Coverage of DAB is now 53%, offering 25 stations in L-Band, with both DAB and DAB+ services on air.

#### Hungary: population 10 million

- Hungary has chosen DAB+ for its digital radio standard, and there is currently a test multiplex on air broadcasting seven DAB+ radio programs to the Budapest area.
- A one day workshop on DAB+ digital radio, co-organised by the National Media and Infocommunications Authority Hungary and WorldDMB in January 2014 was well attended by local broadcasters and those from neighbouring countries.

#### Romania: population 21 million

• 6 DAB trial services on air from public broadcaster Radio Romania.

#### Slovenia: population 2.1 million

- Slovenia's public broadcaster, RTV Slovenia's DAB trial completed Nov 2013. The trial covered the capital city of Ljubljana and central Slovenia and coverage was 22.5%.
- The Post and Electronic Communications Agency of the Republic of Slovenia has setup a public debate regarding the future of digital radio. According to the announced roadmap the national agency will publish a public tender for a digital radio network in DAB+ with national coverage.



#### Asia Pacific and Rest of World

#### Established and new markets

#### Australia: population 23 million

#### Current position

- Launched 2009 with services in five major cities: Sydney, Melbourne, Brisbane, Perth and Adelaide (~65% of population).
- DAB+ penetration<sup>1</sup>: 16% of households in the five cities
- DAB+ listening: 13% of total listening
- Trial services taking place in Darwin and Canberra (extended for 12 months in Aug 2013)
- Automotive line-fit as standard in many models

#### Prospects

- Sixteen on channel repeaters will be rolled out across the five mainland capital cities which currently have a single high powered transmission (to address coverage gaps).
- Commercial Radio Australia (CRA) and the public broadcasters are working with the Federal Government on a timetable for regional roll out.
- CRA has developed a "best practice" automotive document which addresses some of the implementation/User Interface issues that have been evident in some of the earlier models.

#### Hong Kong: population 7.1 million

• Regular DAB+ services launched in August 2011. Population coverage is currently 70%. More than 300,000 devices have been sold.

#### Potential markets

#### China: population 1.3 billion

- DAB is on air in two cities (Beijing in Band III and Shanghai in L-Band). There are four regular regional multiplexes in Beijing and one local multiplex in Shanghai on air.
- In Beijing 20 radio services (16 simulcast), four video services, one Push Radio service, and two data services by Beijing Jolon (commercial broadcaster) are broadcast on Band III. Beijing Communication Radio is broadcasting traffic information on DAB via TPEG. Population coverage is currently 8%.

#### Indonesia: population 242.3 million

- The Indonesian government announced an official decree that Indonesia has chosen the DAB family of standards as the national standard for digital radio. DMB trials have been running in the capital, Jakarta, since 2006. There are currently four services on air. The trial is operated by the regulator and MNC, the largest media company in Indonesia.
- A second trial is planned for Jakarta inQ4 2014 between the Minitry (MCIT) with public broadcaster RRI and the radio broadcasters' association.
- This joint trial is intended to prepare suitable regulation to be implemented for digital radio broadcasting including frequency allocation in Band III and the business model for allocation
- MCIT plans to give 1.000 digital radio receivers to be given to listeners for free.



30/05/2014 13:56

Page 46

#### Vietnam: population 87.8 million

• Public broadcaster, Voice of Viet Nam trialled DAB+ in Jul 2013. The roadmap for digital broadcasting radio and TV 2020 was granted by the Prime Minister in 2009. The Ministry of Communication & Information gathered with broadcasters to discuss implementation of the digital broadcasting scheme by 2020. Currently no services are on air.

#### Thailand: population 67 million

- The Thailand Broadcasting Master Plan (2012-2016) states strategies for terrestrial digital radio rollout with key objectives: 1) Roadmap and policy for digital terrestrial radio roll-out within 2 years, after the adoption of the Master Plan. 2) Broadcasting spectrum management policy and plan, as well as spectrum licensing framework for digital radio broadcasting within 3 years. 3) At least 80% of households in major cities shall be able to access to digital terrestrial broadcast within 5 years.
- Thailand's media regulator NBTC plans to auction 4,000 digital radio licences early in 2015. The National Broadcasting and Telecommunications Commission (NBTC) says it will licence 20 national frequencies, the rest will be local and regional licences.

#### Malaysia: population 28.9 million

- There is one trial local multiplex on air in Kuala Lumpur broadcasting three simulcast data services and 15 DAB+ simulcast services (9 from RTM and 6 from commercial stations).
- CRA is working with WorldDMB, ABU, RTM and a private Malaysian broadcasters to organise a DAB+ Technology Workshop and Transmission Demonstration in Kuala Lumpur, Malaysia, Feb. 28–March 4 to showcase the DAB+ standard and its transmission technology, demonstrating its features and efficiency improvements compared to analogue FM broadcast.

#### Chinese Taipei: population 24 million

• There is one trial national multiplex on air broadcasting 4 exclusive DAB services and one DMB service using Band III.

#### New Zealand: population 5 million

One trial local multiplex is on air and covers Auckland and central Wellington. Population coverage is 22% and content is currently broadcast in a mixture of DAB and DAB+ formats.

#### South Africa: population 53 million

- The Joint SADIBA/NAB Digital Radio DAB+ Trial Working group's application for a high–powered (100kw ERP) DAB+ trial licence has been approved. The trial will run from the 1st April 2014 to 31st March 2015.
- The total area covered by the trial is 21185km2 and the total gross population covered is 10,705,387 (21.5% of total SA population). It is envisaged that between 18 and 20 radio stations from the Public, Commercial and Community sectors will participate.
- situated in Johannesburg and Pretoria in the province of Gauteng, this trial will be the highest powered transmissions of DAB+ in the world.
- Population covered is an estimated 21.5% of total South African population. 18 and 20 radio stations from the Public, Commercial and Community sectors are expected to participate in the trial.

**Middle East** the Arab States Broadcasting Union has adopted T-DAB+ as a delivery platform for sound broadcasting and joined WorldDMB in December 2013. ASBU represents broadcasters in Oman, Algeria,



Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Syria, Tunisia, Sudan, Yemen, Djibouti, Somalia, Palestine, Qatar, UAE as active members.

#### Brunei: population 0.4 million

- In 2007 RTB (Radio Television Brunei, the public and main broadcaster) began a DAB trial, originally to last for five years to include simulcast services. Five RTB stations currently broadcast on DAB in Brunei.
- A task force has been set up within RTB, which is working closely with AITI (Authority for Infocommunications Technology Industry of Brunei) on the plans for a commercial launch.

#### Kuwait: population 3 million

• Following a DAB trial that has been on-going in Kuwait City since March 2007 by the public broadcaster Kuwait Radio, preparations are now under way for the second phase of the trial. A decision regarding commercial roll out is expected once all the trials have been completed. Population coverage is currently 90%.





## Appendix B CRA's Regional Rollout Overview

Commercial Radio Australia recommends a phased roll out for regional expansion.

#### PHASE 1A - EXPANSION PHASE - FY 2016-2018

Funded on a triennium basis in the 2015 Federal budget - roll out to major regional markets over three years .

Markets listed below are examples only. Review of progress as this phase ends

| Albury<br>Bathurst<br>Bega<br>Bendigo<br>Bunbury<br>Canberra – currently trials<br>Coffs Harbour<br>Cooma<br>Darwin – currently trials<br>Cairns<br>Geelong<br>Gold Coast – prior to C'wealth Games<br>Gosford<br>Hobart<br>Launceston<br>Lismore | Mackay<br>Mandurah<br>Murray Bridge<br>Nambour<br>Narrogin<br>Newcastle<br>Nowra<br>Orange<br>Riverland<br>Rockhampton<br>Shepparton<br>Toowoomba<br>Townsville<br>Warragul<br>Wollongong |
|---|---|
|---|---|

#### PHASE -1B REGIONAL ROLLOUT COMPLETION- FY2019- 2022

Regional roll out for remaining regional population centres above 5000 and major arterial roads, following television restack, over the following 4 years

#### PHASE 2 - REVIEW PHASE - FY2019

Assessment of coverage, shared multiplex model, and needs of those areas not yet covered - remote and sparsely populated areas - and further planning and recommendations

30/05/2014 13:56

