# Optus response to "Digital Radio Discussion Paper" - December, 2013



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28 February 2014

Jason Potkins,  
Broadcasting Policy Branch  
Department of Communications  
GPO Box 2154  
CANBERRA ACT 2601

Dear Sir,

**DIGITAL RADIO**

**Reviews to be conducted under section 215B of the *Broadcasting Services Act 199* and section 313B of the *Radiocommunications Act 1992***

**Discussion Paper December, 2013.**

SingTel Optus Pty Limited ('Optus') welcomes the opportunity to provide comments on the issues raised by the Digital Radio Discussion Paper. Optus agrees to this submission being made available for public viewing on the Department's website

Optus response to the questions raised in the Discussion Paper is limited as Optus has very little useful experience in some of the areas canvassed.

This submission by Optus Satellite draws from many years of providing broadcast services by satellite. We focus our response on distribution by satellite to Australian regional and remote transmitter sites of DAB+ (as well as AM and FM as required).

We are able to comment on the use of spectrum for direct satellite broadcasting but the case for implementing such a direct broadcasting system requires a detailed and quite broad business case study involving many aspects , taking all costs into consideration, not only satellite related costs but also the alternative terrestrial DAB+ equipment, site rental and maintenance costs. If the Government were to initiate such a study Optus would be pleased to participate but presently we cannot comment further because of our limited current experience and capability.

We have focused in this response on how the use of satellite technology can aide a rollout of DAB+ Digital Radio in Australia and the various terrestrial and satellite technologies capable of transmitting digital radio broadcasting services and restricted datacasting services in Australia.

It is assumed in our submission which is focused solely on satellite content distribution that appropriate DAB+ licence areas and spectrum will be available and approved by the ACMA as necessary and digital radio transmitter sites have been funded and implemented by others.

## The Viewer Access Satellite Television (VAST) System

The VAST system which has been operating on the Optus Hot Bird satellites at 156.0 E for nearly four years. is a digital transmission system, delivering free-to-air (FTA) TV and, despite its name, also many radio services throughout Australia. It is DVB compliant, employs MPEG-4 video compression and a range of audio compression standards including AAC+. The VAST service is designed to provide DTH performance, with receive antennae typically being 1 metre or less in diameter. VAST operates across several Optus satellite transponders on the co-located C1 and D3 satellite and although the great majority of TV and audio programs are essentially FTA, a conditional-access system is used to encrypt the service to restrict access according to a viewer's geographical location. A smartcard and STB is required to receive and decrypt the services.

The growth in the number of activated DTH viewer receivers in Australia accessing VAST services has been impressive and now exceeds 210,000 It is expected to reach 240,000 before the end of 2014.

By January 2014, there were a total of 200 channels carried on VAST, made up of 96 radio channels as well as 99 digital TV (17 HD plus 82 SD) and 5 data channels.

As noted in the Discussion Paper, ABC and SBS analog and digital radio services are available on the VAST service and these constitute the great majority of the established 96 radio channels. Another broadcaster is Imparja with several channels, and the remainder are made up of business channels and those of small radio operators. There is satellite capacity on VAST to expand the number of channels needed.

## Satellite Reception and Terrestrial Retransmission of VAST Radio Channels

The radio channels on VAST are multiplexed together into transponder sized transport streams (shared as necessary with other channels including TV) and are accessible as a demultiplexed selected single radio channel via the DTH Viewer's (i.e. Listener's) satellite VAST receiver .The VAST channels are by their nature confined to listening around the home because a VAST STB is located there and usually connected to a TV or stereo audio system.

An important means of facilitating reception of Digital Radio both within and beyond the home including mobile reception is by the use of a DAB+ terrestrial transmitter. Optus is of the view that all DTH listeners with VAST installations should be able to receive the full complement of radio channels via VAST which are retransmitted as DAB+, FM or AM (subject to any licensing constraints).This also has the advantage that channels can be sourced off the satellite from VAST for certain terrestrial retransmissions.

At a given radio transmitter site it is also relatively simple to downlink and decode one VAST radio channel via a suitable satellite receiver for transmission by a terrestrial transmitter in the AM or FM mode both of which are inherently a single channel of content.

However, using VAST to feed a regional or remote digital radio transmitter can be more complex. A transport stream must be transmitted terrestrially carrying the particular DAB+ ensemble. Such an ensemble typically consists of 20 DAB+ channels with a total transport stream rate of circa 2 Mbit/s. I f VAST DTH channels are available and used as the source of channels for this purpose, at each transmitter site the necessary complement of channels would have to be received, decrypted, decoded and then multiplexed all together with suitable SI/PSI included to construct the required ensemble transport stream. This amounts to substantial processing. Care must be taken with the type of equipment demanded at every required hill top transmitter site for this processing; to minimize capital and maintenance costs while achieving reliable transmission.

An alternative is to have the ensemble transport stream constructed at an originating site, say a broadcaster's studio or a suitable aggregation point and then backhauled to Optus in a final format for carriage by Optus satellite.

Optus would have a number of options on how to carry this ensemble transport stream on its satellites with the choice depending on a number of factors: total number of streams to be carried; established downlink sites available looking at a particular satellite; available capacity on that satellite etc. A design study can readily proceed once these details are established.

As part of the study Optus would also work with vendors to refine the use of existing radio channels that are already encoded in AAC+ to build an ensemble at a downlink site, this may require carriage of some additional SI as private data, similar to what Optus currently does for DVB-T retransmission. Optus would seek to identify the most cost effective solution for the delivery of DAB+ content to terrestrial retransmission points. This is likely to be a hybrid between full multiplexing at the hill top and carriage of a complete DAB+ Ensemble as a private data stream.

Optus offers the following responses to the Questions raised in the Discussion Paper:

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

Optus does not offer any comment on this question.

1. *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)?*

Optus does not offer any comment on this question.

1. *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?*

Optus does not offer any comment on this question.

1. *Should any of the provisions relating to the access regime be amended or replaced?*

Optus does not offer any comment on this question.

1. *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?*

Optus does not offer any comment on this question.

1. *Should there be any changes to the initial restricted datacasting framework?*

Optus does not offer any comment on this question.

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

Optus does not offer any comment on this question.

1. *How can restricted datacasting be made more attractive to new entrants to the market?*

Optus does not offer any comment on this question.

1. *Should there be additional spectrum allocated for restricted datacasting services?*

Optus would remind the Department that the ITU WARC-92 allocated the 1452 to 1492 MHz band for Digital Broadcasting services both Terrestrial and Satellite. Although worldwide usage of both these components has been very low to date, the 1.4 GHz band is the only frequency bands designated for both types of digital radio and a small portion of the that spectrum might be considered if additional spectrum is needed for datacasting services. This band is currently under study as part of the ITU's WRC-15 agenda for a possible re-allocation for future International Mobile Telecommunications (IMT). Such a usage would severely limit the use of that spectrum for Digital Radio Broadcasting.

In the ACMA's preparatory process for WRC-15, Optus has advocated with respect to the 1452 to 1492 MHz band:-:

*"Optus generally supports IMT in this band but believes that a segment of up to 12.5 MHz should be reserved in the range 1452 to 1492 MHz for future Terrestrial and Satellite digital broadcasting".*

1. *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?*

Optus does not offer any comment on this question.

1. *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?*

Optus does not offer any comment on this question.

1. *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?*

Optus does not offer any comment on this question.

1. *What impact, if any, will the intent of several car manufacturers to install internet-connected entertainment systems have on the future of digital radio?*

Optus does not offer any comment on this question.

1. *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?*

Optus does not offer any comment on this question.

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

Optus has been following the potential usage of satellite technology for satellite radio since the 1980's and was very active at WARC-92 in securing the 1452 to 1492 MHz band for digital satellite and terrestrial radio. Optus was involved with the former DoC Communications Laboratory in satellite radio trials in the 1990's using Optus 1.5. GHz MobileSat service and various measurements were taken around Australia at that time.

Optus notes that whilst satellite radio using the 2.3 GHz band has been operating in North America for some years, satellite radio in the 1.4 GHz band in the rest of the world has been limited to only one provider in 2 markets. Optus has considered several satellite radio opportunities over the years but to date the expected outcomes have not been adequate to justify proceeding. Nevertheless, Optus believes that consideration of this technology in the 1.4 GHz band should be maintained for future planning options.

1. *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?*

Optus does not offer any comment on this question.

1. *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?*

Optus does not offer any comment on this question.

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

As indicated above, Optus supports preserving a portion of the 1452 to 1492 MHz band for terrestrial (and satellite) digital radio. Please see the answer to Question 9 above.

1. *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?*

Optus does not offer any comment on this question.

1. *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?*

Optus does not offer any comment on this question.

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

Optus does not offer any comment on this question.

Optus is willing to elaborate further on the matters addressed in this response if requested. Optus is also willing to contribute to future actions in this review and thanks the Department again for providing the opportunity to respond to the discussion paper. Please contact me if you require any additional information.

Yours sincerely



**J A VIPOND**

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