



Future Use of Unassigned Television Channels

Submission to the
Australian Communications and Media Authority

by
Free TV Australia Limited

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Executive Summary

- A clear policy boundary of ACMA's review is the Government's commitment that the datacasting channels will not be used to provide a new free-to-air commercial television service.
- The datacasting framework is the only mechanism that has been proposed to date which satisfactorily distinguishes between commercial television and other services. Consistent with the Government's commitment to not allocating new commercial television licences on the broadcasting services bands, the two unassigned channels must not be permitted to be used to provide "backdoor" broadcasting services.
- Australian households rely heavily on delivery of free-to-air television signals over the broadcasting services bands (**BSBs**).
- Australia is now at a crucial point in its transition from analogue to digital terrestrial television broadcasting (**DTTB**).
- It is vitally important that decisions regarding uses of the datacasting channels do not disrupt a smooth transition to digital services.
- Channel planning for DTTB must be given priority in any decisions regarding use of the datacasting channels.
- It would be inappropriate to allocate the datacasting channels in any digital television Coverage Area until planning for DTTB is complete in that area and all related Coverage Areas, and same coverage issues have been addressed.
- In areas where planning is complete, any uses of the datacasting channels must be carefully planned to ensure that they do not interfere with the coverage and reception of free-to-air television services.
- It is vital that deployment of any services in the datacasting channels do not disrupt a smooth transition to digital television services for Australian viewers. This requires interference and interoperability issues to be carefully managed.
- Any re-planning of digital television services in the BSBs after analogue switch-off would involve enormous cost and disruption to Australian viewers and broadcasters.

Introduction

Free TV Australia (**Free TV**) is the peak industry body representing all of Australia's commercial free-to-air television licensees.

Free TV welcomes the opportunity to comment in response to the Discussion Paper, *Future Use of Unassigned Television Channels*, released by the Australian Communications and Media Authority (**ACMA**) in March 2006 (**ACMA Review**).

ACMA is seeking comment on a range of issues regarding possible use of the two 7MHz television channels in the BSBs that have not yet been assigned ('**datacasting channels**').

Decisions regarding possible use of the datacasting channels will be made by the Government with the assistance of submissions made in response to ACMA's Review and the Government's *Media Reform Options* Discussion Paper. As a regulatory body, ACMA's role is to assist the Government by providing technical input which may inform the policy matters for decision by Government.

A clear policy boundary of ACMA's Review is the Government's commitment that the datacasting channels will not be used to provide a new commercial free-to-air television service. Accordingly, any new services must not provide content of a kind traditionally provided by traditional free-to-air television broadcasters, or otherwise operate as de-facto free-to-air television services.

It is imperative that spectrum needs for completion of digital roll-out are given priority in any decisions regarding allocation of the datacasting channels; that uses of the datacasting channels do not adversely affect the availability and reception of free-to-air television services; and that deployment of services in the datacasting channels does not disrupt a smooth transition to digital free-to-air television services for Australian viewers.

ACMA has also sought comment on the costs and benefits of re-assigning the VHF and UHF channels used for digital television to make available a contiguous block of spectrum for re-assignment post analogue switch-off. Any benefit in realising a contiguous block of spectrum would be overwhelmingly outweighed by the enormous cost and disruption to Australian viewers and broadcasters of re-assigning existing digital television services.

This submission addresses the following issues raised by ACMA's Discussion Paper.

Section 1: Use of the Datacasting Spectrum

Section 2: Planning Spectrum in the Broadcasting Services Bands

Section 3: Re-stacking of Digital Television Broadcasting Channels

1 Use of Datacasting Channels

A clear policy boundary of ACMA's review is the Government's commitment that the two unallocated datacasting channels "will not be permitted to be used for a new free-to-air commercial television service" and accordingly, any new services must not mirror traditional free-to-air television services.

1.1 Existing Datacasting Framework

New services must be clearly defined to ensure that they do not undermine the Government's commitment by allowing them to provide content of a kind traditionally provided by free-to-air broadcasters. In Free TV's view the datacasting framework is the only mechanism that has been proposed to date which satisfactorily distinguishes between commercial television and other services.

Free TV is particularly concerned about the proposal to permit use of the datacasting spectrum for 'narrowcast television services', given that the current narrowcasting definition has led to numerous instances of narrowcasters providing commercial broadcasting services. The lack of clarity in the criteria for defining narrowcasting has been compounded by case law which suggests that courts will adopt a broad interpretation.¹

ACMA is well aware of the significance of this problem, particularly in the radio sphere where most open narrowcasters currently operate.² ACMA has reported that over the 11 year period from 1 January 1993 to 10 December 2003, 84% of complaints against narrowcasters related to operation of free-to-air commercial services outside the terms of their licence. Breaches were found in 47% of these cases.³ This is despite the fact that narrowcasting services generally receive prior approval from ACMA before they commence broadcasting.

1.2 Telecommunications Carrier Licence Exemption

Broadcasting services are exempt from the requirement to hold a carrier licence under the *Telecommunications Act*.⁴ This provision was enacted in recognition of the fact that broadcasting and its ancillary activities are effectively regulated and separately licensed under the BSA and the *Radiocommunications Act*. Commercial television broadcasters pay substantial licence fees based on a percentage of gross revenue. In 2004-05 these amounted to \$251.2 million dollars, in addition to other taxes.

This carrier licence exemption was extended to services provided under a datacasting content licence in 2000.⁵ The considerations that governed this change continue to apply and the exemption should remain in place. The full range of activities undertaken by broadcasters are already a comprehensive regulatory framework and should not be subject to regulatory or financial duplication.

¹ *Sportsvision v Tallglenn Pty Ltd* (1988) NSWLR 103, as referred to in Professor Ramsay's Report, *ibid* at page 38.

² Professor Ian Ramsay, "Reform of the Broadcasting Regulator's Enforcement Powers", November 2005. This report was prepared for the Department of Communications, Information Technology and the Arts and released in conjunction with its Issues Paper concerning *Proposed Reforms to the Broadcasting Regulatory Powers of the Australian Communications and Media Authority* (November 2005). See page 33.

³ *Ibid*.

⁴ Section 48 *Telecommunications Act (Cth)* 1997.

⁵ Telecommunications (Carrier Licence Exemption Determination No. 1 of 2001 (Amendment No. 1 of 2005)

The question of whether a similar exemption should apply to any new services permitted on the unallocated spectrum should be considered in light of the specific nature of the service and the licence conditions attaching to the grant of the spectrum.

2 Planning Spectrum in the Broadcasting Services Bands

The BSBs are reserved for primary use by free-to-air broadcasting.

One of the key factors which drive planning for television broadcasting is the long-standing bi-partisan regulatory policy which has focussed on ensuring that households across Australia receive high quality free-to-air television services which are delivered substantially free of interference and requires minimal investment in reception devices.

At least 78% of Australian TV homes rely exclusively on free-to-air television services and all Australian TV homes rely exclusively on terrestrial transmission over the BSBs to receive some or all of their free-to-air television services on some or all of their reception devices.⁶ This level of reliance on over-the-air transmission for television services is amongst the highest in the world.

Broadcasters have delivered high-quality free-to-air analogue television services to almost all Australians for the last fifty years. Australia is now at a crucial point in its transition from analogue to digital terrestrial television broadcasting (**DTTB**).

Free-to-air broadcasters have invested heavily to lay the foundations of DTTB. More work remains to be done to ensure that all Australians who currently receive analogue signals will be able to receive free-to-air digital services after switch-off. A much higher level of household take-up (both total homes and reception devices within homes) will be required before the transition to digital television is achieved.

The Government has indicated its desire to achieve analogue switch-off as early as possible. If this goal is to be achieved it is vital that:

- channel planning for DTTB is given priority in any decisions regarding use of the datacasting channels;
- decisions regarding use of the datacasting channels do not compromise the availability and reception quality of free-to-air television services; and
- deployment of new services in the datacasting channels does not disrupt a smooth transition to digital television services for Australian viewers.

This approach is consistent with the policy objectives underpinning the regime for conversion to digital television broadcasting set out in the *Broadcasting Services Act (BSA)*. The Explanatory Memorandum to the *Television Broadcasting Services (Digital Conversion) Bill*, makes it clear that transition to digital television is the primary objective of channel planning required under the conversion schemes. Provision was made for allocation of spectrum in the BSBs for datacasting purposes only to the extent it "is not required for broadcasting purposes".⁷ Planning of the

⁶ Foxtel does not retransmit all digital free-to-view services, and Austar does not re-transmit any regional commercial free-to-view service on its satellite platform. Therefore households receiving pay television require digital terrestrial transmission to receive the digital free-to-view services. Households with pay television also rely on free-to-view services for their secondary television sets, VHS and DVD devices.

⁷ Explanatory Memorandum to the *Television Broadcasting Services (Digital Conversion) Bill 1998*, Notes on Clauses, Item 5 (Amendments of section 34 – Alternative uses of broadcasting services bands); also Regulation Impact Statement, Part B7 Implementation and Review: "Spectrum identified through the [Digital Television Planning and Steering] Committee as *not being required for digital conversion of existing free-to-air broadcasters* will be allocated on a competitive basis for television datacasting services ..." [italics added].

datacasting channels must remain a secondary purpose until a smooth transition to digital television services is achieved.

2.1 Channel Planning for Digital Terrestrial Television Broadcasting

A stable and robust terrestrial transmission platform is vital to a successful transition to digital terrestrial television broadcasting services.

Australia has led the world in the roll-out of DVB-T based DTTB. Australia's DVB-T roll-out has been the fastest in the world over a geographical area larger than any other DVB-T deployment in the world.

The channel planning process to achieve this roll-out has been very complex and detailed. It has been ongoing for nearly ten years and has required ACMA and broadcasters to devote significant engineering resources to research and analyse propagation characteristics at individual transmission sites across Australia.

This work has resulted in a planning model which is considered a benchmark for implementation of the DVB-T standard.

To date free to view digital television services have been successfully deployed in all metropolitan areas and the main regional centres of Australia. At least 87% of television households (6.6 million) are capable of receiving all (four or five depending on coverage area) free-to-view digital channels. At least 96% of the population can receive at least one free-to-view digital channel.

While free-to-air broadcasters have worked hard to roll-out DTTB services faster than any other country, further channel planning remains to be done before roll-out is complete. Once roll-out is complete in the various Coverage Areas, a full assessment of the coverage of digital terrestrial services needs to be undertaken to identify areas that may not receive equivalent coverage of analogue and digital signals. Further channel planning will be necessary to address digital coverage gaps.

It would be inappropriate to allocate the datacasting channels in any Coverage Area until planning for DTTB is complete in that area and all related Coverage Areas. It would be particularly dangerous to allocate the datacasting channels in any Coverage Area where a high and/or dense population means there is a scarcity of available spectrum. To do so would risk excluding some viewers in those areas from free-to-air television services after analogue switch-off and compromise the quality of free-to-air television services received by some viewers.

(a) Completion of Roll-out Planning

The Discussion Paper states that ACMA expects to complete planning for digital television repeater services in regional and remote areas by 2006.

In Free TV's view it is extremely unlikely that planning in remote areas will be completed in this time-frame. Planning for the conversion to digital of free-to-air commercial television services in remote areas has only just begun. Detailed planning work will need to be completed for more than 400 transmission locations, involving a least 3 channels in each location.

As outlined in Attachment C of the Discussion Paper, channel planning is yet to be completed for some large regional commercial centres including Tamworth, Cowra and Young.

(b) Same Coverage

One of the key policy objectives for digital conversion set out in the BSA is a requirement for ACMA to ensure the same level of coverage and potential reception quality of television services in analogue and digital mode.⁸ This requirement was intended to ensure that, as far as possible, all Australians who currently receive analogue signals are able receive free-to-air digital services after switch-off.

It is likely that coverage gaps will exist in a range of locations which will require further channel planning. Australian and European television broadcasters are investigating anomalies in DVB-T performance characteristics that have emerged following roll-out. These relate to the impact of impulsive noise, the effects of reflected signals and the correlation between the performance of coverage prediction algorithms and digital signal quality in specific coverage areas. Broadcasters and ACMA have commenced collecting data in a range of locations to understand the performance anomalies and allow corrective strategies to be developed. Further spectrum is likely to be required to fill coverage gaps.

ACMA and the Department are aware of the need for further channel planning to solve congestion and coverage problems associated with existing digital services, particularly in poor analogue reception locations in metropolitan areas and overlapping regional areas.

Coverage issues will not be able to be fully assessed until digital signals are being transmitted at full-power (and coverage is therefore maximised). In many metropolitan and regional areas, broadcasters will not be able to transmit their digital signals at full-power until analogue switch-off, due to the need to mitigate interference of digital into analogue signals.

A comprehensive testing program will be necessary to identify the precise reach of existing services and to identify any service gaps as well as strategies to address these issues.

Further channel planning may also be necessary to address interference between digital services in adjacent areas. Channel assignments for a black spot solution in Port Stephens on the mid North Coast of New South Wales had to be re-planned due to interference concerns relating to digital signals being transmitted in the adjacent Newcastle licence area.

Once digital services are being transmitted at full-power, it is likely that further incidences of interference between digital services in adjacent areas will arise. Incidences of interference need to be resolved as quickly as possible and it is important that ACMA have the capacity to allocate alternative frequencies and or allocate spectrum to gap fillers or translators, as required.

(c) Black Spot Issues

The Government's Black Spot Program has provided funding to establish or improve television reception in communities across Australia which can not receive analogue television services. Before analogue switch-off the Government will need to consider appropriate planning and assistance for conversion of analogue black-spot solutions to free-to-air digital services.

More recently, the Government has funded digital black-spot transmitters through the Alternative Technical Solutions Scheme. The frequencies allocated for these and future ATS solutions will need to be taken into account before spectrum in the datacasting channels is identified for re-assignment.

⁸ Clause 6(f) & (j), Part 2, Schedule 4, *Broadcasting Services Act 1992*

2.2 Protecting the Availability and Quality of Free-to-air Television Services

The Government should not make the datacasting channels available for allocation in a Coverage Area, unless planning for DTTB services in that area and related Coverage Areas is complete, and same coverage issues have been addressed. Any uses of the datacasting channels must be carefully planned to ensure that they do not interfere with the coverage and reception of free-to-air television services.

The reliance of Australians on terrestrial delivery of free-to-air television services, gives rise to interference issues on a scale and type not relevant to other services. A major interference problem can impact the free-to-air television services received by thousands of viewers, and have major financial impacts on broadcasters.

This is a particular risk for digital services. Whereas in analogue a viewer may suffer a 'snowy' or 'noisy' picture from interference, interference with a digital signal can result in a digital viewer suddenly receiving no service at all. This is referred to as the 'cliff-effect'.

It is important that interference issues are fully understood and that detailed planning is undertaken before spare spectrum in the datacasting channels is allocated for a particular use.

The technical considerations required to plan for broadcasting services requires many more, and more complex, considerations than planning for other uses. Planning of the BSBs is done in accordance with the principles laid out in *Technical Planning Guidelines* developed by ACMA in consultation with broadcasters over many years.

These principles are designed to ensure that the radiation pattern and radiated power of each television broadcasting service within a licence area is planned to maximise spectrum efficiency, to ensure adequate coverage, and to minimise interference. Planning must take account of the particular geographic and demographic characteristics of each broadcast area (for example, applying directional radiation patterns depending on geography, quality requirements, population centres and required coverage areas).

As noted in the Discussion Paper, the datacasting channels were planned to provide DVB-T services to receivers using fixed outdoor antennas. No planning has been done for mobile or portable receivers. The Paper acknowledges that interference issues are likely to arise if the datacasting channels are used for applications such as mobile television. This is likely due to the higher power levels and field strength values that would be required for reception by mobile devices.

Such uses should only be permitted if they can be planned to ensure that they do not compromise the availability or quality of free-to-air television services.

A range of work is being undertaken overseas to examine the protection limits necessary for sharing between DVB-T and other fixed and mobile services. Results of this work are not yet complete. Once complete, these findings will be examined by various Working Parties of the International Telecommunications Union. Australia will need to consider the impact of the findings on the existing Australian Planning Guidelines.

Free TV strenuously rejects the suggestion that if mobile television uses can not be accommodated in the datacasting channels under the current planning model, one option available to the Government may be to request ACMA to undertake an investigation into the feasibility of re-planning the datacasting channels to accommodate use for mobile television purposes.

Broadcasters and ACMA have engaged in an exhaustive channel planning process for the conversion to DTTB, which has taken almost a decade. Any re-planning of the datacasting channels would involve a further detailed channel planning process to vary existing digital channel plans. This would necessarily impose further cost and disruption for viewers and broadcasters, and would severely compromise the transition to digital television services and the goal of analogue switch-off. The impact of any channel re-planning on viewers and broadcasters is discussed further in section 3 below.

2.3 Smooth Transition to Digital Television Services

It is vital that deployment of any services in the datacasting channels do not disrupt a smooth transition to digital television services for Australian viewers.

(a) Interference Management

Interference can result when services are deployed despite exhaustive planning designed to ensure necessary protection limits are in place. Free-to-air broadcasters have spent over \$3 million on an Analogue-Digital Interference Assistance Scheme to manage and minimise interference from roll-out of digital services on analogue reception. To date, the impact of interference on viewers has been very limited due to the careful project management, planning and implementation undertaken by free-to-air broadcasters.

However, the experience of broadcasters is that any incidence of interference with free-to-air television services results in severe frustration from affected viewers and must be resolved as quickly as possible. It is important that the confidence of free-to-air television viewers is not undermined, particularly at a time when a successful transition to digital depends on rapid consumer take-up. Any major interference with free-to-air broadcasting services would also have an adverse financial impact on broadcasters.

Any licenses allocated in the datacasting channels must be subject to a requirement to comply with the Interference Management Scheme (**IMS**) rules set out in the Technical Planning Guidelines. ACMA must ensure that interference issues are managed in a professional and timely way and at the expense of the licensee. Where interference to broadcasting services occurs, the licensee must be required to immediately cease transmissions causing the interference until the issue is satisfactorily resolved.

(b) Service Interoperability

Any new services designed for reception on in-home television receivers must comply with the Australian DTTB Transmission Standard, AS4599, which sets out DVB Service Information requirements for digital terrestrial television broadcasting.

In addition to this Standard new services should comply with Operational Practice 40, developed in 1999 by the Australian Broadcasting Authority under the auspices of the DVB Project and in conjunction with free-to-air television broadcasters.⁹ OP 40 recommends the method of applying DVB Service Information relating to the characteristics for tuning terrestrial digital television receivers (DTV). This information is used during set-up procedures of the DTV receiver and when changes occur to tuning information.

These requirements must be complied with to ensure that services are received in the way intended at the reception point. A failure to comply with Service Information

⁹ Refer http://www.freetvaust.com.au/Content_Common/pg-Engineering.seo

requirements could result in a receiver being unable to receive or decode a free-to-air television transmission signal.

(c) Compression Standards

It is important that MPEG-4/AVC chipsets in television receivers and MPEG-4 decoders (as they become available) are able to decode MPEG-2 based DVB-T services.

Australian television broadcasters are involved in forums where standards are being developed to encourage MPEG-4/AVC services to co-exist with existing transmissions.

Unless devices are backward compatible, by incorporating both MPEG-2 and MPEG-4 decoding, they will not be able to receive free-to-air television signals and viewers will be confronted with a lack of interoperability in television home receiving equipment from one decoding platform to another.

Regulation should be put in place to ensure that service providers and equipment manufacturers are required to comply with Transmission and Receiver Standards designed to ensure that MPEG-4/AVC bitstreams are compatible with MPEG-2 bitstreams, and that MPEG-4 AVC receivers decode MPEG-2 bitstreams of free-to-air television transmissions. In order to future-proof the broadcast network, serious consideration should be given to regulating that the MPEG-4/AVC decoder include a high profile to avoid future digital simulcast requirements.

3 Re-stacking of Digital Television Broadcasting Channels

ACMA has sought comment on the costs and benefits of re-assigning the VHF and UHF channels used for digital television to make available a contiguous block of spectrum for re-assignment post analogue switch-off. Any benefit in realising a contiguous block of spectrum would be overwhelmingly outweighed by the enormous cost and disruption to Australian viewers and broadcasters of re-assigning existing digital television services.

3.1 Impacts on Viewers and Broadcasters

Any proposal for re-assignment would require a total review and re-planning of the existing digital channel allocations, which have been the subject of an exhaustive planning process between ACMA and broadcasters over the past decade.

Changing a channel allocation for a television service in a Coverage Area, does not just require re-planning in that area. It can also impact on service planning in adjacent areas and co-channel allocations in other Coverage Areas, which may be some distance from the area in question. There are over 1000 channel allocations for digital television in the VHF and UHF bands across Australia. Re-stacking could require re-planning of all of these allocations.

Broadcasters would need to make various changes to their transmission infrastructure to accommodate a channel re-assignment. These changes would be costly and disruptive. The impact of the changes also has a flow on effect for viewers, who would need to re-tune their reception equipment and, in some cases, replace their antennas. Cable distribution systems, common in multi-unit residential dwellings and commercial buildings, would also require a range of adjustments and in some cases, replacement.

(a) Changes to Broadcast Infrastructure

Any channel re-assignment would require a range of adjustments to broadcast transmission infrastructure which would be very costly and cause significant disruption at each transmission site. Regional and remote broadcasters would suffer the heaviest impact due to the quantity of transmission infrastructure required to deliver services across their vast licence areas.

Each channel re-assignment is likely to require the following changes.

- Re-design of feeders, combiners and antenna systems for the re-assigned service.
- Adjustment of feeder links to repeaters, transposers and translators.
- Installation of a new filter/combiner to interface the new channels to the broadcast antenna. It is unlikely that a combiner could simply be re-tuned as steeper filtering would be required. It is likely that the transmitter would need to be disconnected during the filter tuning process.

Broadcasters would need to simulcast on both channels during the change-over period, to ensure viewers continue to receive services, and to minimise the adverse revenue impact which would result from service interruption. As most transmission sites have non-redundant transmitters, this will require temporary installation of a second transmitter for the change-over period for each service at each transmission site across the country.

(b) Cable Distribution Systems

A frequency change has particular implications for cable distribution systems which are used to feed free-to-air television signals to a number of locations. This is common throughout apartment blocks and other multi-unit dwellings, hotels, hospitals and schools. To effect a frequency change a technician would need to re-tune the modulators at each head-end. Modulation equipment which is not frequency agile would need replacement. In cases where cabling does not perform above a specific frequency, the cable system would need a major overhaul.

(c) Viewer Reception Devices

A frequency change would require a substantial number of viewers to manually re-tune their television receivers, including set-top boxes, PVR and DVD recorders. This would require an extensive education campaign involving broadcasters, manufacturers and retailers. Some viewers will require a home visit from a technician.¹⁰

Many viewers will have to re-tune their receivers twice. First, when the parallel transmission starts (as described above)¹¹, and again when the existing service is de-commissioned.¹²

Re-assignment of a television service from UHF Band IV to Band V or vice versa, would require some viewers to change their antenna (as not all UHF antennas cover both bands).

¹⁰ As there is no regulation of DTTB receiver devices, consumer device behaviour cannot be predicted. This also means that broadcasters can not automatically redirect receivers during a frequency change.

¹¹ Based on current receiver designs on the market, a scan will result in two instances of each service which may be confusing to viewers

¹² When the existing service ceases, viewers will be left with service entries in their receiver which do not work. This may require a second technician visit to re-scan and remove the old services from the receiver memory.

The costs to viewers alone are likely to be in the order of hundreds of millions of dollars. The period of disruption could be extensive, depending on extent of the requirement for antenna installers, television technicians and electricians.

Costs to broadcasters and viewers would be magnified if new services introduced into the 'freed' channels cause interference to free-to-air television services.

3.2 Overseas Developments

The Paper notes that in the US (where analog/digital conversion is more advanced) parts of the BSBs have been sold for other uses and the UK is considering the potential for re-stacking. Planning requirements for broadcasting in the US and UK are very different to Australia, where the population is highly dispersed across a vast land mass and most of the population relies on terrestrial signals to receive free-to-air broadcasting services. As such, any parallels between the US and Australia regarding the potential for non-broadcast uses of this spectrum need to be treated with caution.¹³

**Free TV Australia
16 May 2006**

¹³ This is recognised in the ACMA Discussion Paper *Future Use of Unassigned Television Channels*.