



**Submission by
Free TV Australia Limited**

Australian Communications and Media
Authority

Introduction of television outside broadcast
services into the bands 1980-2110 MHz and
2170-2300 MHz

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EXECUTIVE SUMMARY

- Free TV is concerned that this latest consultation paper issued by the ACMA makes changes to the original plan for the long term arrangements for electronic news gathering (ENG). These changes will compromise the utility and viability of the spectrum that is designated to replace the 2.5GHz band for the purposes of ENG.
- Free TV has identified the key areas of concern in this submission. We seek further consultation with the ACMA in order to resolve these issues prior to any further progress in this matter.
- Free TV members welcome the limited interim use of the bands 1985-2105MHz and 2175-2200MHz during the transition to the alternative bands. Free TV members would welcome a contact point for interim spectrum access.

1 Introduction

This submission is made by Free TV Australia (Free TV) which is the peak industry body representing all commercial free-to-air broadcasters in Australia. Commercial free-to-air television is the most popular source of entertainment and information for Australians.

Free TV Australia welcomes the opportunity provided by the ACMA to respond to the ACMA's *Response to submissions: Band plan for television outside broadcast* (IFC11/12).

The following submission should be read together with the Free TV response to the ACMA's paper on *Draft frequency band plans to facilitate television outside broadcast access to 1980-2110 MHz and 2170-2300 MHz* (IFC36/11), provided on 21 November 2011.

Free TV welcomes the reaffirmation of the ACMA's key objective, which is to provide long-term certainty for the current incumbents of the 2.5 GHz band—the TOBN licensees, the free-to-air (FTA) commercial broadcasters and the ABC.

Free TV notes the proposed frequency band plan for television outside broadcast services is intended to:

- *identify the 1980–2110 MHz and 2170–2300 MHz frequency bands as available for use by TOB services*
- *support the clearance of existing fixed point-to-point links in bands and areas to be frequently used by TOB services by no later than 1 November 2013*
- *support the cessation of earth station operations in the 2025–2110 MHz and 2200–2300 MHz bands in Perth (Landsdale/Gnangara) by no later than 31 December 2015*
- *revoke the Mobile-Satellite Service (2 GHz) Frequency Band Plan 2002 to remove conflicting provisions that would otherwise limit the operation of TOB services in the 1980–2010 MHz and 2170–2200 MHz bands*
- *revoke the 2.1 GHz Band Frequency Band Plan 2000 to remove conflicting provisions that would otherwise limit the operation of TOB services in the 2076–2111 MHz band.*

Free TV also welcomes the identification of key tasks the ACMA must undertake to implement this plan, including:

- *developing a legislative frequency band plan to support clearance of fixed point-to-point links and introduction of TOB services*
- *varying existing legislative frequency band plans remove conflicting provisions that would otherwise limit the operation of TOB services*



- *development of coordination and licensing requirements for TOB services to be recorded in a radiocommunications assignment and licensing instruction (RALI)—an administrative policy document*
- *revisions to spectrum embargoes to reflect arrangements developed for TOB services.*

Broadcasters must have access to electronic news gathering spectrum that is equivalent to the 2.5GHz band that is currently in use. This is an issue that has been raised by Free TV in previous submissions to this process.

The original proposal set out in the ACMA discussion paper *Review of the 2.5 GHz band and long-term arrangements for ENG* (IFC1/2010) was designed to ensure that commercial television and the ABC would be able to access suitable spectrum for news gathering and outside broadcasting. However, Free TV is concerned that the integrity of the original proposal is being compromised by the incremental reduction in the quality and usability of spectrum proposed to replace the 2.5GHz band.

This submission sets out Free TV's key areas of concern at this point in the consultation process. It is relevant to note that Free TV has not commented on the issue of earth station restrictions and TOB channel arrangements as discussed at page 15 and 16 of the current ACMA paper. These issues are contentious and it is our view that they cannot be determined until the matters raised in this submission have been resolved.

We note that there will be further industry consultation and we look forward to working with the ACMA to resolve these critical issues.

2 Viability of long-term sharing between ENG and mobile-satellite services

The ACMA has proposed ENG access to 1980–2010 MHz and 2170–2200 MHz, with the caveat that mobile-satellite services may be introduced into these bands in the future. As part of this process, the ACMA has undertaken to conduct further investigations to establish the viability of long-term sharing between ENG and mobile-satellite services.

In MR/2010 the potential limitations were indicated as:

- *Long term availability dependent on possible future introduction of mobile satellite services (MSS) and if arrangements can be developed that support long term ENG use in capital cities with MSS restricted to remote/regional areas*
- *Clearance of a number of fixed links - mostly located in regional and/or remote areas.*
- *In capital city areas usable spectrum reduced by at least 5 MHz due to adjacent band wireless access services.*
- *In Perth & Canberra, operation in 2170-2200 MHz restricted by coordination with adjacent band earth stations.*

In the latest paper (IFC11/12), the ACMA states that a change has been made to:

- *ensure that the plan meets the policy objective of supporting the operation of TOB services in the 1980–2010 MHz and 2170–2200 MHz bands without any changes to existing provisions supporting mobile-satellite services.*

This indicates that the ACMA has determined that no change is needed to the spectrum arrangements with regard to mobile-satellite services in the relevant bands.



This provides no viability for long-term sharing between ENG and MSS in the identified bands because mobile-satellite services and TOB cannot co-exist. These issues need to be addressed as part of any long term solution for broadcasters. Free TV members seek further consultation and clarification from the ACMA in relation to this matter.

3 Earth station restrictions on spectrum availability - Canberra

The ACMA has indicated:

In Canberra and surrounds, while the 2025–2110 MHz and 2200–2300 MHz bands are not specifically excluded from use by TOB services, coordination requirements will restrict the use of such services in those bands. It may be that greater use of other bands available for use by TOB services, such as the 7.2 GHz band, will be required in the Canberra area.

This overlooks the fact that coordination is already required with earth stations in the Canberra area, such as with CSIRO at Tidbinbilla. These arrangements have been in place since 2004.

They arose from the December 2002 Australian Communications Authority (ACA) Spectrum Planning paper SP 15/02 titled “ACA Response to Comments on Spectrum Planning Report SP 4/02 *Revised Television Outside Broadcast (TOB) Arrangements in the 7.2 GHz Band And the Way Ahead*”. This paper concluded (amongst other things) that:

TOB sharing with space research transmitters in the 7145 to 7235 MHz frequency range would be achieved by TOB coordinating around space research operations if and as necessary.

In addition, the band 7250 to 7375 MHz requires TOB coordinating with Defence. Refer http://www.acma.gov.au/webwr/radcomm/frequency_planning/frequency_assignment/docs/x3/7-2g.pdf

This leaves only 7105 to 7145MHz available and *unconstrained* for ENG operations in Canberra. This is a considerable constraint on news gathering operations in the Canberra area because of the very limited bandwidth (40MHz) in the 7.2GHz band. This is not a satisfactory outcome for the existing TOB licensees. Free TV seeks further consultation with the ACMA to resolve this issue.

4 Earth station restrictions on spectrum availability - Perth

The ACMA has indicated:

For Perth, earth station operations in the 2025–2110 MHz and 2200–2300 MHz bands at Landsdale and New Norcia will continue until 1 January 2016. Until that time, use of those bands by TOB services will not be supported. After 1 January 2016, earth station operations will cease at Lansdale and operations at New Norcia will be restricted to 2044–2054 MHz, 2215–2230 MHz and 2290–2300 MHz bands.

Restrictions that vary from area to area complicate the task of determining channel arrangements, particularly in the case of TOB services for FTA broadcasters, which are typically determined on an Australia-wide basis. While minor restrictions, or restrictions in low-demand areas, are easily accommodated, more significant restrictions in areas of frequent TOB usage are more challenging.

Free TV members advise the ACMA that Australia wide deployment achieves considerable economies of scale for ENG. The constraints in Perth will add significant costs to Australia-wide deployment, interoperability and deployment of infrastructure.



Free TV urges the ACMA to consider alternative options, to facilitate Australia-wide deployment.

5 Fixed point-to-point links

On page 14, the ACMA states:

The objective of the secondary provision and the embargo is to support TOB operations and provide flexibility to support fixed point-to-point links where minimal impact on TOB operations can be demonstrated.

Free TV seeks clarification on how the ACMA envisages the secondary operation of fixed links can operate in a dynamic news gathering environment.

Free TV members (and other TOBN licensees) remain opposed to the imposition of secondary operation of fixed links in these areas.

6 TOB channel arrangements in the bands 2010-2105MHz and 2200-2295MHz

Free TV notes the *notional channel arrangements* on pages 18, 19 and 20 of the response paper. However Free TV members consider that the following statement is highly optimistic:

In the alternative bands, once the bands 1980–2010 MHz and 2170–2200 MHz are no longer available, 200 MHz of spectrum will remain for use by TOB services—100 MHz in 2010–2110 MHz and 100 MHz in 2200–2300 MHz. Anticipated restrictions due to coordination requirements with adjacent band spectrum licences are likely to reduce available spectrum by 5 MHz at the 2110 MHz and 2300 MHz band edges. The result is 95 MHz in each band and 190 MHz in total (the amount of spectrum currently available in the 2.5 GHz band).

These proposed arrangements will reduce the Australia-wide utility to electronic news gathering, because of the constraints previously outlined by the ACMA.

In the band 2010-2105MHz, these constraints are:

- proposals for TOB coordination with fixed point-to-point links outlined areas and bands
- supporting mobile satellite services in the future in the adjacent band
- coordination arrangements for operation of fixed point-to-point links on a secondary basis in specified areas after 31 October 2013 in the band 2010-2110MHz.

In the band 2200-2295MHz, these constraints are:

- proposals for TOB coordination with fixed point-to-point links outlined areas and bands
- supporting mobile satellite services in the future in the adjacent band
- ban on the operation of airborne transmitters (for example, helicopters) in the 2200–2300 MHz band.



The ACMA has also noted, in footnote 14, that: *While wider bandwidth is preferred by TOB operators, 7 MHz is still considered sufficient for TOB applications though quality or operating range may be reduced.*

However, Free TV advises the ACMA that a substantial amount of Australian TV program content is now HDTV, which requires a greater bandwidth than a 7MHz bandwidth for the necessary “contribution” quality.

Free TV members have learnt from recent research in the UK and with DENG equipment manufacturers that channel bandwidth for TOB systems is now focussing on 10MHz and 20MHz to achieve the necessary HDTV quality. This is due to the increasing usage of HDTV systems which require the additional bandwidth. Please refer to <http://licensing.ofcom.org.uk/binaries/spectrum/pmse/ir2038.pdf>

Free TV is happy to explore a revised long term band plan arrangement in the 2010-2105MHz (95MHz) and 2200-2295MHz (95MHz) *constrained* bands. This is to maximise long-term arrangements for FTA broadcasters who currently are almost exclusively licensed to use the 2500-2690MHz (190MHz) *unconstrained* band under TOBN licences.

7 Use of 7.2 GHz for television outside broadcast services

As stated previously, Free TV members consider the availability of the sub band 7105 to 7150MHz for ENG operations is a considerable constraint on news gathering operations in the Canberra area.

Free TV is aware the band is used overseas in the US and parts of Europe (including the United Kingdom) and Free TV members readily use the band in Australia for planned TV outside broadcast events.

In Attachment B the analysis indicates possible ranges for camera backs up to 2km, based on free space and no clutter. Use in stadiums involves a lot of multipath that would reduce the C/N margin, and there would also be a need to allow for clutter looking into player access areas etc. A 6dB of clutter loss would reduce operational distances by half. Allowing 20dB for clutter/fade margin would reduce the operational efficiency by a factor of 10.

In Attachment C, the ACMA references the ARPANSA standard. It is relevant to note that overseas manufacturers apply ETSI standards for EME analysis and specifications.

Free TV members are happy to work with the ACMA toward developing a dialogue with equipment manufacturers should an Australian EME reference need to be applied for Australian deployment of TOB systems.

8 Shared use of alternative bands for television outside broadcast services

Free TV notes that the ACMA has proposed the 7.2GHz band be considered as an alternative band for ENG.

Free TV members are concerned this would place substantial congestion on the band 7105-7250MHz in all areas outside Canberra and require considerable coordination.

The ACMA has not considered the potential use also of the band 8275-8400MHz which is currently assigned to the ABC and other shared users. Please refer to http://www.acma.gov.au/webwr/radcomm/frequency_planning/frequency_assignment/docs/fx3/8-3g.pdf



Free TV members note that on page 23, the ACMA states that “*ongoing sharing is an industry issue to manage as a continuation or extension of current practices.*”

Current practices have been developed for the unconstrained use of the 2.5GHz band, and not the increasingly constrained TOB band usage now proposed. Free TV members look forward to the ACMA providing clarification on how sharing/coordination can be undertaken in a constrained context.

9 Next steps

Free TV looks forward to working with the ACMA in developing an approach that makes provision of long-term certainty for the current incumbents of the 2.5 GHz band—the TOBN licensees, the free-to-air commercial broadcasters and the ABC. Any solution must include coordination arrangements with services other than fixed point-to-point links and earth stations such as:

- defence aeronautical mobile telemetry services
- radioastronomy services and
- adjacent band spectrum licences.

Free TV members welcome the limited interim use of the bands 1985-2105MHz and 2175-2200MHz during the transition to the alternative bands.

Free TV members would welcome a contact point for this interim spectrum access.