



FreeTV
Australia

**Submission by
Free TV Australia Limited**

Senate Environment, Communications,
Information Technology and the Arts
Committee

Inquiry into the provisions of the
Communications Legislation Amendment
(Information Sharing and Datacasting) Bill
2007

By
Free TV Australia Limited

17 July 2007



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EXECUTIVE SUMMARY

- The spectrum to be auctioned for Channels A and B forms part of the Broadcasting Services Bands, and was originally planned for delivery of datacasting services using DVB-T transmission technology to standard household television receivers.
- The Government now intends that Channel B will be able to be used for a wider variety of services, including mobile television services using cellular technology. Little if any planning has occurred to date regarding the use of cellular technology in Channel B.
- If Channel B is used for mobile television or other services based on cellular technology, interference to existing digital terrestrial television services will result. This impact has already been identified by ACMA.
- It is imperative that the introduction of mobile television services in Channel B is carefully and cooperatively planned to ensure that new mobile television services do not compromise the availability and quality of free-to-air digital terrestrial television services and disrupt the smooth transition to digital television services for all Australian viewers.
- The proposed amendments to the *Radiocommunications Act 1992* will allow frequency variations to be made to datacasting services, such as Channel B services, without regard to published planning criteria, public consultation, and a proper assessment of the likely impact of such changes.
- Free TV submits that the proposed amendments to the *Radiocommunications Act 1992* should be revised to require ACMA to undertake a planning process for the allocation or variation of frequencies for datacasting services, consistent with the existing approach for broadcasting services.
- A consultative planning process is necessary to protect the availability and quality of existing free-to-air television services, and minimise disruption and cost for viewers, broadcasters, Channel A and B licensees and their customers.
- The Disclosure of Information provisions in the Bill should be amended to ensure that information provided in confidence to ACMA, must not be provided by ACMA to another agency unless that agency also agrees to keep the information confidential.



INTRODUCTION

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

Free TV welcomes the opportunity to provide written submissions to the Inquiry on the *Communications Legislation Amendment (Information Sharing and Datacasting) Bill 2007 (the Bill)* being undertaken by the Senate Environment, Communications, Information Technology and the Arts Committee.

This submission comments on:

- the amendments to the *Radiocommunications Act 1992* set out in Part 2 Division 1 of Schedule 1 to the Bill (the **Datacasting Licence Amendments**);
- the amendments to the *Australian Communications and Media Authority Act 2005* set out in Part 1 of Schedule which empower ACMA to provide 'authorised disclosure information' to Ministers, Departmental Secretaries, Royal Commissions and specified authorities (**Disclosure of Information Amendments**).

Disclosure of Information Amendments

Free TV has had the opportunity to review the ABC's submission to the Inquiry dated 17 July. Free TV agrees with the comments made by the ABC.

In particular, the Bill should be amended to ensure that ACMA can not disclose confidential information to another agency unless that agency also agrees to keep the information confidential. The only exception to this should be if the organisation which originally provided the information consents in writing to the information being provided without a condition of confidence.

Free TV has one comment in addition to those made by the ABC. Proposed s.59F permits the disclosure of information if it is "already publicly available", but this needs to be qualified to ensure that breaches of confidentiality (whether by ACMA or other persons) are not compounded by further disclosures. Confidentiality obligations in commercial contracts are commonly qualified in this manner, and we suggest the following wording for proposed s.59F (our additions in *italics*):

"An ACMA official may disclose authorised disclosure information if it is already publicly available *otherwise than as a result of a breach of an obligation of confidentiality owed to a person to whom the information relates.*"

Datacasting Licence Amendments

The remainder of this submission focuses on the Datacasting Licence Amendments.

On their face, these amendments appear to be very simple, in that they provide ACMA with the power to vary the conditions of datacasting transmitter licences relating to the frequency and transmission characteristics of those licences.

However, for the reasons given below, it is very important that changes to frequency and transmission characteristics are not made without a thorough prior assessment of the impact of the proposed changes on the availability and quality of free-to-air television services.

Free TV submits that the Bill should be should be revised to require ACMA to undertake a transparent and consultative planning process for the allocation or variation of frequencies for datacasting services, consistent with the existing approach for broadcasting services under Part 3 of the *Broadcasting Services Act* (the **BSA**).

It is important that the introduction of mobile television and other services using non DVB-T technology in the Broadcasting Services Bands (**BSBs**) is carefully planned and managed for the following reasons.

- (a) Channel A and Channel B will use spectrum in the BSBs.
- (b) This spectrum was originally planned for datacasting services for delivery to standard household television sets using DVB-T technology, that is, technology which uses a broadcasting distribution model.
- (c) As Channel A will be used for services able to be received on a standard household television, it will continue to use DVB-T technology and interference issues are unlikely to arise.
- (d) However, Channel B has been ear-marked for new services, such as mobile television which is likely to be based on cellular technology (ie technology used for mobile phones).
- (e) Little if any planning has been done for the use of cellular technology in the BSBs.
- (f) Unless careful planning is undertaken, introduction of mobile television services in Channel B will result in loss of television services and/or interference and disruption to viewers and broadcasters in relevant areas. A planning group (similar to the Digital Channel Planning Group with representatives from the Department, ACMA, broadcasters and Channel A and B licensees (at the appropriate time) should be convened as soon as possible to consider and manage these issues.
- (g) Any variations to the frequencies allocated to Channel B services also need to be carefully planned to ensure interference does not result to broadcasting services.
- (h) It is imperative that the possible impacts of a frequency change on the availability and quality of free-to-air television services are fully considered in consultation with broadcasters prior to any change being made.

This submission addresses the following topics:

- | | |
|------------------|--|
| Section 1 | The importance of protecting the availability and quality of free-to-air television services |
| Section 2 | The need for further planning for mobile television services |
| Section 3 | Experience in other jurisdictions |



1 Protecting the availability and quality of FTA TV services

Broadcasting services are planned and operated in accordance with published planning and technical criteria to ensure the provision of high quality and interference-free broadcasting services to Australian audiences. As a result, the Australian broadcasting sector delivers, and Australian audiences are accustomed to receiving, broadcasting services of a very high technical quality. This has been the case throughout the history of broadcasting in Australia.

It is vital that the introduction of new mobile television services in the Broadcasting Services Bands does not compromise the availability and quality of free-to-air broadcasting services.

Approximately 75% of Australian TV homes rely exclusively on free-to-air television services and all Australian TV homes rely exclusively on terrestrial transmission over the Broadcasting Services Bands (**BSBs**) to receive some or all of their free-to-air television services over some or all of their reception devices. This level of reliance on over-the-air transmission of television services is amongst the highest in the world.¹

Broadcasters are now at a critical stage of the digital transition. At least 87% of television households (6.6 million) are capable of receiving all free-to-air digital channels and 96% can receive at least one. Consumer confidence in digital has been increasing over the last 18 months with almost 30% of households now capable of watching free to view digital services.

A major interference problem from an adjacent mobile television service could impact the free-to-air television services received by thousands of viewers. This will particularly be the case in geographic areas where Channel B has been allocated frequencies that are very close to heavily used television broadcasting frequencies.

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 is more likely to result in a digital viewer suddenly receiving no service at all. This is referred to as the 'cliff-effect'.

It is important that the confidence of free-to-air television viewers is not undermined by interference issues, particularly at a time when a successful transition to digital depends on rapid consumer take-up.

¹ 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.

2 Need for careful planning for introduction of mobile TV services

2.1 The need for mandated planning

It is important that Channel A and Channel B services are subject to the same rigorous and transparent planning and technical processes as has been undertaken by ACMA for terrestrial television broadcasting services in the BSBs. This is necessary to ensure that, as far as possible, interference issues are addressed before they occur. Like broadcasters, Channel A and B licensees must also be subject to a requirement to minimise interference between services

This is particularly the case in relation to Channel B, where ACMA has identified significant interference issues in its June 2006 Advice to the Government on the *'Unassigned Television Channels'*. Free TV has been provided with a redacted copy of this advice, following its release under a Freedom of Information application by *The Australian*.

Although large portions of the Advice have been removed or masked, it is clear that investigations by ACMA revealed that many channels are not suitable for mobile television and where channels are available, significant interference to television services will result if mobile television services were deployed in certain areas, including major regions of Sydney. At page 40, ACMA states:

"Most respondents considered the channels to be suitable for mobile television, however, there was little evidence of detailed technical analysis of the adjacent channel interference issue ...It is highly unlikely that this level of interference will be tolerable in Australia. In ACMA's preliminary analysis of the issue using a case study based on Sydney, even the best case result showed that, on average, 1000 people would be affected by interference from each additional mobile television repeater."

In major markets such as Sydney and Melbourne, there would be a large number of mobile television repeaters, with the consequence that a great many television households would be affected. Similar results would be experienced as mobile television is rolled out across Australia.

It is clear from the Government's own expert adviser, ACMA, that the use of Channel B for mobile television services presents a number of planning challenges. These challenges need to be addressed comprehensively to ensure that any deployment of cellular based services in these channels does not result in loss of television services and/or major interference and disruption to viewers and broadcasters in affected areas.

Free TV submits that a planning process for new services in the BSBs should be mandated in the *Radiocommunications Act 1992*. Such a planning process could be similar to the Digital Television Channel Planning Consultative Group, comprising representatives from the Department, ACMA, national, metropolitan and regional broadcasters and Channel A and Channel B licensees (at the appropriate time).

A very brief summary of just some of the planning challenges that would need to be addressed before mobile television services are deployed in Channel B is set out at Attachment A. Free TV provided detailed comment on technical and planning issues in its February 2007 response to ACMA's Discussion Paper on the *Allocation of Spectrum for New Digital Television Services*.

2.2 Discretionary processes and technical conditions are not adequate

Free TV submits that the only way to address the interference and planning challenges presented by the use of Channel B for mobile services or other cellular based technologies, is to require ACMA to undertake a detailed and consultative planning process.

The planning process should also apply to any variations to the frequency or technical characteristics of a datacasting licence. At present the proposed amendment to section 111 will empower ACMA to vary the conditions of a licence without any industry consultation, without regard to any legislatively recognised planning criteria and without adequate regard to the consequences for existing broadcasting services. It may well be that ACMA makes a decision to change the frequencies for datacasting services only after an appropriate consultation and planning process. However, issues of the availability and quality of free-to-air television services are far too important to leave to administrative discretion.

Further, it would not be adequate to simply impose licence conditions on the Channel A and Channel B licensees, similarly to other radiocommunications licensees. This would not be an adequate approach for the following reasons.

First, planning of broadcasting spectrum involves a wide range of issues that should be considered in a co-ordinated manner, rather than a piece-meal manner by individual licensees.

Secondly, an industry consultation process is required to ensure that all potential planning issues are identified.

Thirdly and most importantly, an individual licence condition approach is ad hoc and depends on the resources devoted to planning by individual licensees. This approach does not minimize interference risks at the outset.

The fourth reason is that in any event, only limited conditions are imposed on datacasting licences. For example, under section 108 of the *Radiocommunications Act 1992*, there is an obligation to comply with any conditions relating to containment of interference. However, this obligation applies only if there is a specific licence condition and does not address the planning processes required prior to establishing the frequencies for the relevant licence. To express the issue another way, a condition to contain interference is of limited value if the frequency itself is causing interference problems, which have arisen because the original planning processes were deficient.



Section 109A also requires a datacasting transmitter licensee to comply with technical guidelines issued under the *Broadcasting Services Act 1992*. However, those guidelines presently do not address the interaction between Channel B datacasting transmitter licences (when deploying cellular technology) and broadcasting services. There is a need for a planning requirement which provides for extensive industry consultation, gives primacy to broadcasting services as the incumbent and primary users of broadcasting spectrum, and ensures that other services including other datacasting services, are planned in a manner which addresses all potential interference issues.

3 Experience in other jurisdictions

Free TV is not aware of any other jurisdictions where mobile TV services have been planned or deployed in channels immediately adjacent to fixed broadcasting services.

In the United States, Qualcomm MediaFLO technology has been allocated to Band V of the equivalent spectrum in the United States to avoid interference between broadcasting services and mobile services. QUALCOMM, a radiocommunications technology vendor, has reflected this experience in pages 2 – 7 of its submission to ACMA's Discussion Paper on *Future Use of Unassigned Television Channels* dated 10 May 2006.

QUALCOMM's submission advocates use of the upper UHF TV frequency bands for mobile television on the basis that these bands maximise the coverage area per cell and minimize the cost per byte relative to typical cellular systems. Fixed TV services on the other hand, are more suited to the lower UHF spectrum (below 700 MHz) due to lower propagation loss.

Free TV strongly believes that similar planning options should be explored in Australia. Channels A and B as currently planned are predominately located in Band IV of the BSBs. There would be a much lower risk of interference to broadcasting services, if Channel B was to be re-planned in upper Band V.

These planning options need to be identified and pursued through an appropriate planning process which is mandated by legislation.



**ATTACHMENT A -
KEY PLANNING ISSUES FOR MOBILE TV IN CHANNEL B**

1. Transmission path variations

There are significant variations between the transmission path for fixed television broadcasting services and mobile television services.

Planning for analogue and digital broadcasting and datacasting services in the BSBs has been based upon the principles established for radio propagation of a single dominant signal for coverage and reception of those analogue and digital signals.

Planning for reception of mobile television signals would need to take account of coverage and reception planning from multiple and reflected signals in cluttered environments, rather than a single dominant signal as occurs in digital television. It would also need to take into account other factors such as location variability, time variability and height gain and building / vehicular penetration loss.

2. Protection ratio issues

Current planning of Channels A and B has been based upon a series of assumptions which include that transmissions will use DVB-T coding and MPEG-2 compression. These are technical protocols for broadcasting transmission.

If mobile operators adopt different transmission protocols (such as cellular technology), then it will be necessary to first identify the appropriate interference protections and the channels available at each location. The variability of mobile signal levels means that mobile services require particular attention to these issues.

As broadcasting is primary in the BSBs, planning must foremost ensure that broadcasting services are appropriately protected. Interference protection measures may need to change over time as broadcasters adopt new coding or compression schemes. This underlines the need for a process of co-operative industry consultation which considers and addresses all likely future issues.

3. Minimum signal level

The minimum signal level required to deliver an acceptable service will be higher for mobile than for fixed services. As such, planning for mobile TV needs to take account of higher carrier to noise (C/N) ratios to achieve reliable decoding compared with the fixed outdoor antenna case that is assumed for planning digital broadcasting and datacasting services in Australia.

4. Alternate band for Channel B

The television broadcasting spectrum in Australia consists of a number of bands. Band III is currently used for analogue and digital terrestrial television broadcasting and in the future is being considered for digital radio. Band IV is primarily used for analogue and digital terrestrial television. Band V is also primarily used for analogue and digital terrestrial broadcasting services. As a

result of the concentration of digital television services in Band IV, there is a strong risk of interference if digital datacasting services incompatible with the current analogue and digital terrestrial broadcasting services are located in that band. Free TV submits that the better solution would be to progressively locate those services in upper Band V. This solution was adopted in the United States, as discussed above in this submission.

Free TV notes that ACMA has identified the optimum range for mobile television is UHF channels 28-59 and as a result has indicated it does not intend to select channels above 59 for Channel B, which are located in Band V. This is the case even if the only alternative channel is within the same general frequency range as broadcaster channels at a site. The reason given by ACMA is that channel 59 and above are not suitable due to the potential for interference between mobile television reception and mobile telephone (GSM900) transmissions within integrated mobile television/mobile phone handsets.

The basis for this assumption is not completely clear. A number of jurisdictions, including France (which uses GSM900), have allocated and are promoting frequency ranges extending above Australian channel 59 (750MHz) i.e. up to 862MHz. In addition the EU Commission has announced plans to offer the 1.4GHz (L-band) for mobile television until analogue television channels become available in 2012.

Free TV has stressed to ACMA that it should not rule out allocation of channels above 59 where interference mitigation could be attained through design of low power single frequency networks operating in the upper frequency ranges of Band V.



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EXECUTIVE SUMMARY

- The spectrum to be auctioned for Channels A and B forms part of the Broadcasting Services Bands, and was originally planned for delivery of datacasting services using DVB-T transmission technology to standard household television receivers.
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- Free TV submits that the proposed amendments to the *Radiocommunications Act 1992* should be revised to require ACMA to undertake a planning process for the allocation or variation of frequencies for datacasting services, consistent with the existing approach for broadcasting services.
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On their face, these amendments appear to be very simple, in that they provide ACMA with the power to vary the conditions of datacasting transmitter licences relating to the frequency and transmission characteristics of those licences.

However, for the reasons given below, it is very important that changes to frequency and transmission characteristics are not made without a thorough prior assessment of the impact of the proposed changes on the availability and quality of free-to-air television services.

Free TV submits that the Bill should be should be revised to require ACMA to undertake a transparent and consultative planning process for the allocation or variation of frequencies for datacasting services, consistent with the existing approach for broadcasting services under Part 3 of the *Broadcasting Services Act* (the **BSA**).

It is important that the introduction of mobile television and other services using non DVB-T technology in the Broadcasting Services Bands (**BSBs**) is carefully planned and managed for the following reasons.

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This submission addresses the following topics:

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1 Protecting the availability and quality of FTA TV services

Broadcasting services are planned and operated in accordance with published planning and technical criteria to ensure the provision of high quality and interference-free broadcasting services to Australian audiences. As a result, the Australian broadcasting sector delivers, and Australian audiences are accustomed to receiving, broadcasting services of a very high technical quality. This has been the case throughout the history of broadcasting in Australia.

It is vital that the introduction of new mobile television services in the Broadcasting Services Bands does not compromise the availability and quality of free-to-air broadcasting services.

Approximately 75% of Australian TV homes rely exclusively on free-to-air television services and all Australian TV homes rely exclusively on terrestrial transmission over the Broadcasting Services Bands (**BSBs**) to receive some or all of their free-to-air television services over some or all of their reception devices. This level of reliance on over-the-air transmission of television services is amongst the highest in the world.¹

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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 is more likely to result in a digital viewer suddenly receiving no service at all. This is referred to as the 'cliff-effect'.

It is important that the confidence of free-to-air television viewers is not undermined by interference issues, particularly at a time when a successful transition to digital depends on rapid consumer take-up.

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2 Need for careful planning for introduction of mobile TV services

2.1 The need for mandated planning

It is important that Channel A and Channel B services are subject to the same rigorous and transparent planning and technical processes as has been undertaken by ACMA for terrestrial television broadcasting services in the BSBs. This is necessary to ensure that, as far as possible, interference issues are addressed before they occur. Like broadcasters, Channel A and B licensees must also be subject to a requirement to minimise interference between services

This is particularly the case in relation to Channel B, where ACMA has identified significant interference issues in its June 2006 Advice to the Government on the *'Unassigned Television Channels'*. Free TV has been provided with a redacted copy of this advice, following its release under a Freedom of Information application by *The Australian*.

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"Most respondents considered the channels to be suitable for mobile television, however, there was little evidence of detailed technical analysis of the adjacent channel interference issue ...It is highly unlikely that this level of interference will be tolerable in Australia. In ACMA's preliminary analysis of the issue using a case study based on Sydney, even the best case result showed that, on average, 1000 people would be affected by interference from each additional mobile television repeater."

In major markets such as Sydney and Melbourne, there would be a large number of mobile television repeaters, with the consequence that a great many television households would be affected. Similar results would be experienced as mobile television is rolled out across Australia.

It is clear from the Government's own expert adviser, ACMA, that the use of Channel B for mobile television services presents a number of planning challenges. These challenges need to be addressed comprehensively to ensure that any deployment of cellular based services in these channels does not result in loss of television services and/or major interference and disruption to viewers and broadcasters in affected areas.

Free TV submits that a planning process for new services in the BSBs should be mandated in the *Radiocommunications Act 1992*. Such a planning process could be similar to the Digital Television Channel Planning Consultative Group, comprising representatives from the Department, ACMA, national, metropolitan and regional broadcasters and Channel A and Channel B licensees (at the appropriate time).

A very brief summary of just some of the planning challenges that would need to be addressed before mobile television services are deployed in Channel B is set out at Attachment A. Free TV provided detailed comment on technical and planning issues in its February 2007 response to ACMA's Discussion Paper on the *Allocation of Spectrum for New Digital Television Services*.

2.2 Discretionary processes and technical conditions are not adequate

Free TV submits that the only way to address the interference and planning challenges presented by the use of Channel B for mobile services or other cellular based technologies, is to require ACMA to undertake a detailed and consultative planning process.

The planning process should also apply to any variations to the frequency or technical characteristics of a datacasting licence. At present the proposed amendment to section 111 will empower ACMA to vary the conditions of a licence without any industry consultation, without regard to any legislatively recognised planning criteria and without adequate regard to the consequences for existing broadcasting services. It may well be that ACMA makes a decision to change the frequencies for datacasting services only after an appropriate consultation and planning process. However, issues of the availability and quality of free-to-air television services are far too important to leave to administrative discretion.

Further, it would not be adequate to simply impose licence conditions on the Channel A and Channel B licensees, similarly to other radiocommunications licensees. This would not be an adequate approach for the following reasons.

First, planning of broadcasting spectrum involves a wide range of issues that should be considered in a co-ordinated manner, rather than a piece-meal manner by individual licensees.

Secondly, an industry consultation process is required to ensure that all potential planning issues are identified.

Thirdly and most importantly, an individual licence condition approach is ad hoc and depends on the resources devoted to planning by individual licensees. This approach does not minimize interference risks at the outset.

The fourth reason is that in any event, only limited conditions are imposed on datacasting licences. For example, under section 108 of the *Radiocommunications Act 1992*, there is an obligation to comply with any conditions relating to containment of interference. However, this obligation applies only if there is a specific licence condition and does not address the planning processes required prior to establishing the frequencies for the relevant licence. To express the issue another way, a condition to contain interference is of limited value if the frequency itself is causing interference problems, which have arisen because the original planning processes were deficient.

Section 109A also requires a datacasting transmitter licensee to comply with technical guidelines issued under the *Broadcasting Services Act 1992*. However, those guidelines presently do not address the interaction between Channel B datacasting transmitter licences (when deploying cellular technology) and broadcasting services. There is a need for a planning requirement which provides for extensive industry consultation, gives primacy to broadcasting services as the incumbent and primary users of broadcasting spectrum, and ensures that other services including other datacasting services, are planned in a manner which addresses all potential interference issues.

3 Experience in other jurisdictions

Free TV is not aware of any other jurisdictions where mobile TV services have been planned or deployed in channels immediately adjacent to fixed broadcasting services.

In the United States, Qualcomm MediaFLO technology has been allocated to Band V of the equivalent spectrum in the United States to avoid interference between broadcasting services and mobile services. QUALCOMM, a radiocommunications technology vendor, has reflected this experience in pages 2 – 7 of its submission to ACMA's Discussion Paper on *Future Use of Unassigned Television Channels* dated 10 May 2006.

QUALCOMM's submission advocates use of the upper UHF TV frequency bands for mobile television on the basis that these bands maximise the coverage area per cell and minimize the cost per byte relative to typical cellular systems. Fixed TV services on the other hand, are more suited to the lower UHF spectrum (below 700 MHz) due to lower propagation loss.

Free TV strongly believes that similar planning options should be explored in Australia. Channels A and B as currently planned are predominately located in Band IV of the BSBs. There would be a much lower risk of interference to broadcasting services, if Channel B was to be re-planned in upper Band V.

These planning options need to be identified and pursued through an appropriate planning process which is mandated by legislation.



**ATTACHMENT A -
KEY PLANNING ISSUES FOR MOBILE TV IN CHANNEL B**

1. Transmission path variations

There are significant variations between the transmission path for fixed television broadcasting services and mobile television services.

Planning for analogue and digital broadcasting and datacasting services in the BSBs has been based upon the principles established for radio propagation of a single dominant signal for coverage and reception of those analogue and digital signals.

Planning for reception of mobile television signals would need to take account of coverage and reception planning from multiple and reflected signals in cluttered environments, rather than a single dominant signal as occurs in digital television. It would also need to take into account other factors such as location variability, time variability and height gain and building / vehicular penetration loss.

2. Protection ratio issues

Current planning of Channels A and B has been based upon a series of assumptions which include that transmissions will use DVB-T coding and MPEG-2 compression. These are technical protocols for broadcasting transmission.

If mobile operators adopt different transmission protocols (such as cellular technology), then it will be necessary to first identify the appropriate interference protections and the channels available at each location. The variability of mobile signal levels means that mobile services require particular attention to these issues.

As broadcasting is primary in the BSBs, planning must foremost ensure that broadcasting services are appropriately protected. Interference protection measures may need to change over time as broadcasters adopt new coding or compression schemes. This underlines the need for a process of co-operative industry consultation which considers and addresses all likely future issues.

3. Minimum signal level

The minimum signal level required to deliver an acceptable service will be higher for mobile than for fixed services. As such, planning for mobile TV needs to take account of higher carrier to noise (C/N) ratios to achieve reliable decoding compared with the fixed outdoor antenna case that is assumed for planning digital broadcasting and datacasting services in Australia.

4. Alternate band for Channel B

The television broadcasting spectrum in Australia consists of a number of bands. Band III is currently used for analogue and digital terrestrial television broadcasting and in the future is being considered for digital radio. Band IV is primarily used for analogue and digital terrestrial television. Band V is also primarily used for analogue and digital terrestrial broadcasting services. As a

result of the concentration of digital television services in Band IV, there is a strong risk of interference if digital datacasting services incompatible with the current analogue and digital terrestrial broadcasting services are located in that band. Free TV submits that the better solution would be to progressively locate those services in upper Band V. This solution was adopted in the United States, as discussed above in this submission.

Free TV notes that ACMA has identified the optimum range for mobile television is UHF channels 28-59 and as a result has indicated it does not intend to select channels above 59 for Channel B, which are located in Band V. This is the case even if the only alternative channel is within the same general frequency range as broadcaster channels at a site. The reason given by ACMA is that channel 59 and above are not suitable due to the potential for interference between mobile television reception and mobile telephone (GSM900) transmissions within integrated mobile television/mobile phone handsets.

The basis for this assumption is not completely clear. A number of jurisdictions, including France (which uses GSM900), have allocated and are promoting frequency ranges extending above Australian channel 59 (750MHz) i.e. up to 862MHz. In addition the EU Commission has announced plans to offer the 1.4GHz (L-band) for mobile television until analogue television channels become available in 2012.

Free TV has stressed to ACMA that it should not rule out allocation of channels above 59 where interference mitigation could be attained through design of low power single frequency networks operating in the upper frequency ranges of Band V.