



**Submission by
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Australian Communications and Media
Authority

Five-year Spectrum Outlook 2009-2014

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1 Executive Summary

- Free TV strongly supports the need for transparency and certainty in ACMA's spectrum planning and decision-making activities. The next five to ten years are going to see significant change in the areas of spectrum demand and management.
- While Free TV welcomes the publication of ACMA's draft Five Year Spectrum Outlook and the insight it provides into ACMA's assessment of spectrum demand issues, many of the key decisions regarding broadcasting services band spectrum are policy decisions reserved for the Government.
- The draft Outlook can not and should not replace detailed consultation on individual spectrum planning issues.
- Free TV submits that the overriding spectrum issue facing government in the next five years is the need to ensure that all viewers who presently receive analogue free to air television are able to receive digital free to view television at switchover.
- As the focus of the Outlook is framed as the next five years, the draft Outlook should place greater emphasis on the role of Government in the key digital television planning and coverage issues that will need to be addressed in the lead-up to switchover in 2013.
- As presently drafted, there is a disproportionate focus on the longer term demand for non-broadcasting uses of the Broadcasting Services Bands (BSB) spectrum.
- Broadcasters also rely on non-BSB spectrum to deliver highly valued and popular free to air television content. Broadcasters are under pressure from perceived increases in demand for this spectrum.
- Decisions to change the existing use of spectrum in response to increased demand result in major financial implications for the existing spectrum users, and the potential loss of capacity and quality of an existing service.
- Thus it is vitally important that ACMA adopt a thorough, transparent and accountable approach to spectrum demand analysis. The draft Outlook would benefit from greater clarity as regards ACMA's proposed methodology for demand analysis.
- Similarly, whilst the Outlook contains an overview of ACMA's decision-making process and a commitment to greater transparency, greater detail of how this will be applied in practice should be provided.
- For industry to have confidence in the ACMA spectrum decision-making process, decisions must be justified in an open and transparent manner throughout the decision-making process and not just after a decision has been made.
- It is important that ACMA follow through on its commitment to take on stakeholder feedback and regularly review its spectrum Outlook, and share the results with industry.



2 Introduction

Free TV represents all of Australian's free to air television broadcasters. Free TV welcomes the opportunity to comment on ACMA's draft Five-year Spectrum Outlook 2009-2014.

Australia's commercial free to air broadcasters have first-hand experience of the increasing demand for spectrum (especially as regards spectrum used for broadcasting applications), and the resulting pressures on government, regulators and incumbent users.

Ongoing accountability and transparency regarding ACMA's assessment of spectrum demand issues has the potential to improve stakeholder relations and industry confidence. This is particularly important as we move into a period of significant change in the areas of spectrum demand and management.

The draft Outlook provides a high-level glimpse of some of the key spectrum issues that ACMA considers likely to arise in the next five-years, largely as a result of international trends. It can not and should not replace detailed national planning and consultation with industry as regards specific services and spectrum decisions.

Free TV notes the draft Outlook is presented as a 'living document', and this submission puts forward a number of important issues which should be addressed in the next iteration of the Outlook.

Free TV submits that the overriding spectrum issue facing government and the free to air television industry in the next five years is to ensure that all viewers who receive analogue television are able to receive free to view digital television at switchover.

The role of this legislated objective of 'same coverage' as a spectrum demand driver needs to be carefully considered and will in part be determined by a number of key government policy decisions.

As the focus of the Outlook is framed as the next five years, Free TV submits that greater emphasis should be placed on the key digital television planning and outstanding coverage issues that will need to be addressed in the lead-up to switchover in 2013. As presently drafted, there is a disproportionate focus on the longer term demand for non-broadcasting uses of the Broadcasting Services Bands (BSB) spectrum. The draft Outlook would have benefited from a similar emphasis on the dividend arising from the transition of mobile telephony from 2G to 3G.

Free TV understands that the delivery of a 'Digital Dividend' is a key Government priority. However, in terms of an overview of key spectrum tasks in the immediate future, the size and nature of any such dividend must be secondary to the fulfillment of the legislated requirement for 'same coverage'.

There will be other spectrum demand drivers from within the free to air television broadcasting industry and these are not adequately addressed in the draft Outlook. Free TV has previously provided feedback on these important issues and was disappointed to see that information was not included in the draft Outlook. These include second generation Digital TV, migration to other coding technologies and U-HDTV.

Broadcasters also rely on non-BSB spectrum to deliver highly valued and popular free to air television content. Broadcasters are under pressure from perceived increases in demand for this spectrum.



Decisions to change the existing use of spectrum in response to increased demand result in major financial implications for the existing spectrum user and the potential loss of capacity and quality of an existing service. Thus it is vitally important that ACMA adopt a thorough, transparent and accountable approach to spectrum demand analysis.

In order for industry to have confidence in ACMA's assessment of spectrum demand, a full explanation of its approach to demand analysis in each band and for each service, should be provided.

Free TV has previously put forward its views on what is required to form an appropriate spectrum demand analysis. It is not clear from the draft Outlook whether ACMA has responded to this feedback and the document would benefit from greater clarity as regards ACMA's proposed methodology for demand analysis.

Similarly, whilst the Outlook contains an overview of ACMA's decision-making process and a commitment to greater transparency, more detail of how this will be applied in practice should be provided.

For industry to have confidence in the ACMA spectrum decision-making process, decisions must be justified in an open and transparent manner throughout the decision-making process and not just after a decision has been made. A failure to commit to transparency in practice will lead to a lack of trust between industry and ACMA.

So, whilst the draft Outlook represents a starting point for a more transparent and accountable spectrum management framework, it is important that ACMA follow through on its commitment to take on stakeholder feedback and regularly review the paper.



3 Spectrum demand outlook

- *A transparent statement of ACMA's understanding of spectrum demand issues will assist industry in planning and development.*
- *In order for industry to have confidence in ACMA's assessment of spectrum demand, a full explanation of its approach to demand analysis in each band and for each service, should be provided.*

Given spectrum is a scarce public resource, spectrum planning necessarily involves a fine balancing of competing uses and opportunity costs. Increasing demand for spectrum creates a range of regulatory, policy and industry impacts. It is crucial that spectrum planning is based on sound analysis of demand for spectrum and of public benefit in the proposed spectrum use.

As an incumbent user of spectrum, Free TV has previously identified the overriding importance of a thorough and transparent methodology for spectrum demand analysis. Decisions to change the existing use of spectrum in response to increased demand result in major financial implications for the existing spectrum user and the potential loss of capacity and quality of an existing service.

Free TV therefore supports the stated aims of the draft Outlook - to provide insight into ACMA's assessment of spectrum demand pressures. A transparent statement of ACMA's understanding of spectrum demand issues will assist industry in planning and development.

In order for industry to have confidence in ACMA's assessment of spectrum demand, a full explanation of its approach to demand analysis in each band and for each service, should be provided. For example, whilst Chapter 3 of the draft Outlook includes a statement of factors ACMA considers to be key demand drivers, it would greatly benefit from a discussion as to how those factors can be accurately measured.

In addition to the drivers outlined in Chapter 3 of the draft Outlook, ACMA must pay regard to which technologies are standardised, the time-frame for deployment of services, the likely short, medium and long-term demand for those services in the Australian market and the needs in different geographical areas of Australia (urban, urban-fringe, regional and remote areas).

As noted below in section 3.2 of this submission, it is Free TV's position that a range of evidence based assessments must occur before ACMA can present a thorough demand analysis.

This must include market analysis (looking at potential uses of the spectrum), technical analysis (looking at candidate technologies) and economic analysis (looking at the underlying business case for proposed spectrum uses).

Free TV notes that ACMA has a role in coordinating Australia's involvement in the International Telecommunications Union and World Radio Conferences (WRC). Whilst the draft Outlook notes WRC outcomes as one of the drivers in international markets, it should also acknowledge the impact of these outcomes on the Australian spectrum outlook (particularly as regards WRC-11 and studies in the lead up to WRC-15).

Chapter 3 notes that customer demand for high data rate applications is a factor that can drive demand. It is very important for ACMA to demonstrate, as part of each individual



planning decision, the link between a demand for additional services and a requirement for additional spectrum releases. The link between demand for high data rate services and the actual quantum of additional spectrum required to meet such demand can not be assumed and must be demonstrated on a case by case basis.

For example, a large amount of spectrum has been allocated to 3G mobile technologies, but to date take-up of 3G services has been low. ACMA recently reported that only a third of mobile customers own a 3G-capable phone. Further, two-thirds of those customers do not use the 3G services available on their phones. Free TV has previously noted the poor public policy outcomes which arise from bands being left idle for no defined purpose.

ACMA must also critically assess spectrum requirement estimates from prospective service providers to ensure they are reasonable. There is no incentive for prospective service providers to estimate a spectrum need which is less than their best case scenario. If they are to be relied upon by ACMA in planning decisions, service provider estimates must be made available for stakeholder review. Spectrum estimates being developed in ITU-R forums have been the subject of much debate, including by key stakeholders within Australian regulatory forums. In addition New Zealand has demonstrated through its contributions to Working Party 8F considerable criticism of the methodologies developed in the ITU-R for spectrum estimates for IMT-2000 and systems beyond IMT-2000.

Such open and transparent consultation processes enhance industry confidence in spectrum demand estimates.

It is also possible that service provider estimates are based on a desire to reduce infrastructure costs, rather than on spectrum congestion in already available bands.

In broad terms, Free TV welcomes the insight the draft Outlook provides into ACMA's assessment of spectrum demand but wishes to emphasise the need for regular reviews of the Five-year Outlook.

More detailed comment on specific matters of spectrum demand is set out below.

3.1 Broadcasting spectrum demand outlook

- *The overriding spectrum issue in the next five years is the need to ensure 'same coverage'.*
- *The draft Outlook focuses disproportionately on demand for spectrum that is currently used by broadcasters, rather than an assessment of demand drivers within the industry.*

Chapter 5.2 of the draft Outlook purports to assess spectrum demand as regards broadcasting services. This is a critically important task, given the significant changes expected in the next five years as free to air television moves towards digital-only broadcasting.

The overriding spectrum issue facing government and the free to air television industry in the next five years is to ensure that all viewers who receive analogue television are able to receive free to view digital television at switchover.

In this regard, there is insufficient consideration of the spectrum needs likely to arise from the conversion to digital television. The chapter appears to focus on demand for



spectrum that is currently *used* by broadcasters, rather than an assessment of demand drivers within the industry.

It is likely that digital television coverage gaps will exist in a range of locations and that further channel planning will be required. ACMA itself has acknowledged the likely need for additional spectrum to address coverage issues arising from Single Frequency Networks (SFN).¹ ACMA should also acknowledge the importance of planning guidelines to achieve the spectrum efficiencies which may be possible from interference-free adjacent channel transmissions. Whilst many coverage issues (and hence spectrum requirements) will not be able to be fully assessed until after switch-off, such issues will be important drivers of spectrum demand. These issues should be given more prominent consideration in the Five-year Outlook.

The brief discussion of digital television planning issues on page 42 is primarily devoted to an estimate of released channel capacity and does not provide a full picture of broadcasters' current and likely ongoing spectrum needs.

Whilst the draft outlook makes brief mention on page 39 of some of the important coverage issues facing the Government in the lead up to switchover, such as the conversion of self-help transmission sites, these issues are framed in terms of the impact on the Digital Dividend. In relation to the conversion of self-help sites, ACMA notes that "careful consideration of the spectrum efficiency of these options is required as they may potentially erode the size of any potential digital dividend."²

This approach is concerning, and there is an implicit suggestion that such issues are not legitimate drivers of spectrum demand. The overriding objective for Government must be to enable industry to meet the legislated objective of 'same coverage'. The size and nature of the 'digital dividend' is secondary to the fulfillment of this objective, and not vice versa. Free TV rejects the suggestion that DTH satellites would achieve same coverage of DTT services.

Further, decisions on these matters are reserved for the Minister, who will have regard to all relevant policy issues. It is not appropriate for ACMA to be making public statements on policy issues which are yet to be determined by the Minister.

The remaining focus in the draft Outlook's consideration of broadcasting spectrum demand is clearly on analogue and digital radio planning.

While we do not comment on the importance or otherwise of these tasks and priorities, it is disappointing that there is no mention of future technological developments as regards digital television which are likely to be important drivers of spectrum demand.

The Outlook must recognise future broadcasting spectrum demand pressures such as second generation digital television, migration to alternative coding technologies (MPEG-4) and ultra-high definition television. Broadcasters reported these as important issues when interviewed by the consultants engaged by ACMA in the preparation of the draft Outlook.

¹ Page 40

² Page 39



Instead, ACMA has highlighted possible demand for alternative uses of the Digital Dividend spectrum.³ As the future use and configuration of this spectrum is an issue that Government will decide, there is limited utility in ACMA speculating as to possible uses.

Free TV also notes there is no reference to the future spectrum needs of secondary users of the BSBs, particularly users of wireless microphones and related equipment and users of medical telemetry equipment, all of which use the unassigned television channels available in the relevant locations. Wireless microphones are noted as a possible future use of digital dividend spectrum but with no reference to current use and no quantification of future needs.

3.2 WAS spectrum demand outlook

- *Free TV has previously expressed strong concerns regarding ACMA's approach to WAS spectrum demand analysis.*
- *It is unclear from the draft Outlook if ACMA has responded to these concerns.*

Chapter 5.9 of the draft Outlook contains ACMA's analysis of demand for spectrum for 'wireless access services' (WAS).

This is an issue of direct interest to all free to air television broadcasters. Free to air television broadcasters are currently licensed to use the 2500-2690MHz (2.5GHz ENG band) to produce program material outside the studio, including live news, current affairs, sport and other events (often referred to as ENG, OB and EFP uses). The band was previously identified by ACMA in its Spectrum Planning Discussion Paper SPP 1.06 *Strategies for Wireless Access Services* as a candidate band for possible allocation to WAS in Australia.

Free TV's submission to that paper (and to the subsequent SPP10/06 *Strategies for Wireless Access Services – Spectrum Options*), raised a number of issues of serious concern to its members regarding the possibility of relocation of broadcasters in favour of allocation of the 2.5 GHz band to WAS. Of critical concern was that no suitable alternative spectrum has been identified that can meet the existing requirements that support broadcasting uses.

Free TV also expressed serious concerns regarding the adequacy of the demand analysis undertaken by ACMA to inform its assessment of WAS spectrum needs. The consideration of WAS spectrum demand in the draft Outlook represents an opportunity for ACMA to demonstrate that it has responded to these concerns.

From the information provided in the draft Outlook, it is not clear that ACMA has responded to these concerns. Whilst chapter 5.9.2 provides a discussion of issues affecting WAS spectrum demand, this discussion is general in nature and does not reference any detailed market research or technical analysis.

Yet the draft Outlook repeats the estimate of "800-1000 MHz" required for WAS by 2014, which ACMA inserted into an Australian delegation brief for the WRC Preparatory meeting in February 2007.

³ Page 40

Free TV commented on this estimate in its submission to ACMA's SPP 10/06:

“It is reasonable to expect that estimates put to the ITU-R which purport to represent Australia's views regarding demand for spectrum for WAS uses would be based on market and demand analysis conducted by ACMA. If this is the case, it would be useful for ACMA to identify the analysis that has been undertaken so that it can receive input from stakeholders as part of the current consultation process.”

Aside from a brief, non-specific and non-detailed reference to “Australian and international statistics”, ACMA has provided no further discussion of the methodology used to reach the current estimate.

In accordance with the stated objectives for the draft Outlook (transparency and accountability), ACMA needs to clearly state what analysis lies behind these estimates and what further study may be necessary. If further work is to be undertaken, in the interests of transparency, ACMA should state the basis on which that work will proceed and timeframe for its completion.

In the absence of this information, Free TV restates its position on the range of evidence based assessments that must occur before ACMA can present a thorough and transparent WAS spectrum demand analysis:

- Market analysis: an assessment of the potential uses that might be made of the available bands, based on direct stakeholder engagement.
- Technical analysis: detailed assessment of the relevant technical conditions for using candidate technologies in available bands.
- Economic analysis: Modelling of the potential economic value that could be released through use of the available bands. This involves detailed consideration of the underlying business cases for participation in an auction process.

Free TV has previously stated its support for the approach taken by Ofcom. Ofcom commissioned research to understand the WAS technologies most likely to require further spectrum, and then studied the technical conditions for using those technologies. This work was used to analyse the technical conditions for co-existence of potential services in available bands with other services operating either in adjacent bands or at the same frequencies.

This is the level of rigour and analysis which is still required to support ACMA's estimates of future WAS spectrum demand. The draft Spectrum Outlook Paper would greatly benefit from a clear statement of the level of detail of analysis already undertaken and what is planned for the future.

Free TV also notes that the draft Outlook has not considered why a specific technology has been applied by incumbent spectrum users. When discussing the 2.5 GHz band, the draft Outlook focuses on WAS requirements and does not give due consideration to the requirements of incumbent users of the band. A broader understanding of Australian ENG requirements is demonstrated in section 5.1.1 which notes the “high definition (HD) digital video systems operated by broadcasting networks on-board helicopters”.



When completed, the Five-Year Outlook for 2009-2014 must also go beyond an analysis of service demand and explain the evidence and methodology relied upon to link service demand levels with spectrum requirements. There is clear evidence to suggest that the perceived or anticipated requirements for additional spectrum are often overstated and that the ability of new technology to deal with increasing demands for services through more efficient spectrum utilisation is often overlooked.

Speculative assessments regarding how much spectrum will actually be required to meet the demand for wide-bandwidth WAS is not consistent with a Spectrum management regime founded on transparency and accountability.

3.2.1 Current WAS spectrum use

- *Measures to promote the efficient use of existing spectrum allocations should be prioritised.*

When considering 'current spectrum use', the draft Outlook fails to address a key aspect of spectrum use, namely the nature and intensity of that use, as distinct from intended use. The examination of actual use would provide real insight into the shortage or otherwise of spectrum and hence the requirement to release additional spectrum to meet demand.

A related aspect is the degree to which it is feasible to increase the utility of the existing spectrum resource via the application of new technology. This should be addressed when assessing the need for the re-allocation or release of spectrum for particular services.

Evidence of idle spectrum or a failure or unwillingness to apply new technology to enhance spectrum utility would constitute clear evidence that perceived demand pressures may be overstated, or based on a desire to gain easy access to new spectrum.

Table 5.4 on page 96 of the draft Outlook identifies current spectrum allocations, but does not include a consideration as to whether that spectrum is currently being used. This was an issue identified by Free TV in its March 2007 submission to ACMA's *Strategies for Wireless Access Services Spectrum Access Options* paper. ACMA must carefully consider whether existing allocations are being properly planned and utilised.

To this end, it is encouraging to see that ACMA has identified the need to promote efficient use of spectrum as a means of responding to increased demand. These measures should be prioritised.



3.3 Digital Dividend

- *It is inappropriate and unnecessary for ACMA to speculate on the amount of 'Digital Dividend' spectrum that might become available.*
- *The need to ensure that all viewers who receive analogue television are able to receive free to view digital television at switchover must be addressed before the size and shape of the 'Digital Dividend' can be finally determined.*

Chapter 4 of the draft Outlook provides an overview of ACMA's high-priority spectrum planning projects. Chapter 4.3 addresses the Digital Dividend.

Whilst it is expected that the delivery of a Digital Dividend features prominently in this Chapter, the overriding objective for Government when considering BSB spectrum post-switchover must be the legislated requirement for 'same coverage'.

The need to ensure that all viewers who receive analogue television are able to receive free to view digital television at switchover must be addressed before the size and shape of the 'Digital Dividend' can be finally determined. It is not yet clear just how much spectrum will be required to achieve 'same coverage'. This assessment will be a highly complex task, and will require ongoing consultation between industry and Government.

The final result of that assessment will be subject to numerous variables and technical assumptions, and in large part these are matters on which the decision-making power rests with the Minister. It must also be borne in mind that many coverage issues will not become clear until after analogue signals are switched-off.

It is therefore premature and unnecessary for ACMA to speculate on the amount of 'Digital Dividend' spectrum that might become available. Free TV is strongly concerned that this chapter includes an unfounded and unsubstantiated estimate of 'Digital Dividend' spectrum of 100 to 150 MHz.⁴ Free TV assumes this estimate is based on a totalling of the amount of spectrum currently used for analogue television broadcasting, with an assumption of extensive re-stacking. However, ACMA has provided no explanation of its estimate and has not acknowledged the extensive re-planning exercise that would be required to maintain 'same coverage' if re-stacking were to occur. Accordingly, Free TV requests this statement be removed from any further releases of the Outlook.

Further, the amount of spectrum in the 'Digital Dividend' is also subject to Government decision-making on a number of important issues, such as:

- The conversion on self-help transmitter sites;
- The extent and nature of any 're-stacking'; and
- The allocation of Channel A and Channel B spectrum.

Of particular concern is that the figure used appears to be based on an assumption of extensive re-stacking. In the absence of a stated Government position on this issue ACMA should not be making public statements or creating expectations on that basis.

⁴ Page 23



It is not clear why ACMA has ventured a position on such a contentious issue in what is clearly intended to be a brief overview of current spectrum management tasks. ACMA risks creating unrealistic expectations within the Government and other industry sectors regarding the future of BSB spectrum and has done so without any explanation of methodology, technical assumptions or other key variables noted above. Free TV is concerned that the creation of expectations regarding the size of the dividend at this early stage will impact on key policy decisions yet to be made by the Government.

The reference to overseas jurisdictions' Digital Dividend spectrum and auction results is also not useful. This includes reference to the US approach of allocated paired bands 763-775 MHz and 793-805 MHz to a nationwide broadband 'public safety' network. There are important differences between the Australian broadcasting landscape and those overseas, which mean direct comparisons are not always helpful. Comparisons with overseas jurisdictions should be made only where they are relevant to Australian circumstances.