



AUSTRALIAN INDUSTRY
GROUP

Ai Group Submission
Digital Dividend Green Paper
February 2010

EXECUTIVE SUMMARY

The Australian Industry Group (Ai Group) welcomes the opportunity to comment on the Australian Government, Department of Broadband, Communications and the Digital Economy, *Digital Dividend Green Paper*.

The Consultation Paper initiates the public consultative process the Government announced in January 2010 seeking comment on a range of issues that will assist the Government in making a final decision on the 'size and location of the digital dividend'.

Ai Group supports:

- Allocating a minimum of 120 MHz of the digital dividend spectrum for mobile telecommunications and wireless broadband services;
- An accelerated program and an immediate roadmap to restacking and releasing the spectrum for both telecommunications and broadcasting

On the basis of feedback from members, Ai Group expects the Australian Government to:

1. Maximise spectrum efficiency by;
 - Implementing a "five plus two" broadcast planning scenario to provide greater flexibility in the development of broadcasting services, recognising the significant and increasing consumer demand for High Definition services, and from 2010, 3D TV.
 - Plan for spectrum needs of future technologies (such as Transfer Jet) including any necessary arrangements for access to spectrum currently allocated for Government use.
2. Develop a well funded digital restacking communications strategy for industry and the general public
3. Fund additional research, as a valuable input to the spectrum planning and allocation process, testing devices that could possibly cause interference into televisions sets, and the susceptibility of television sets to any such interference

RESPONSE TO THE GREEN PAPER

It is noted that the Digital Dividend Green Paper seeks comments on the following:

- Potential uses of the 126 MHz of spectrum in the UHF Band V identified as being freed up by the digital television switchover, the so called 'digital dividend'
- Costs involved in releasing a contiguous block of spectrum by restacking broadcasting services

In addition to providing comments on these matters, Ai Group also takes this opportunity to raise concerns about the following:

- Limiting the planning of non-digital dividend spectrum to six digital television channels
- The management of any interference issues for DVB-T receivers that may arise out of use of UHF Band V (694 MHz – 820 MHz) for purposes other than broadcasting.

In providing comment on the Digital Dividend Green Paper, the objectives should be to maximise economic and productivity benefits and to limit the impact of costs to consumers and industry. We believe these objectives can be achieved by:

1. Maximising spectrum efficiency within both the spectrum freed-up for the digital dividend and the spectrum remaining for broadcasting services
2. Providing a realistic and funded transition plan and communications strategy for the restacking of broadcasting services
3. Addressing any issues related to potential interference to consumer products by the reclassification of broadcast services bands for mobile wireless broadband services

Maximising spectrum efficiency

Ai Group submits that there is a need to ensure that the efficient use of spectrum in VHF Band III and UHF Bands IV and V is maximised. This requires an assessment

of the current consumer demand for services and the ability to maximise spectrum efficiency for future use. The principle of maximising spectrum efficiency applies equally to broadcast services bands and to other parts of the spectrum. In fact many of Ai Group's consumer electronics supplier members would like to see the release of spectrum at 4.48 GHz, which is currently reserved for the Department of Defence. The spectrum is needed for implementation of Transfer Jet technology, a wireless data transfer protocol to be embedded in other consumer electronics products to enable rapid close proximity transfer of data between devices.

Ai Group is also aware that wireless audio devices (low-interference potential devices) will be impacted by future spectrum allocation and that there will be a need to manage this process in a timely fashion to consider the interests of equipment manufacturers and users.

In assessing current consumer demand for digital dividend spectrum, Ai Group acknowledges the modelling by Spectrum Value Partners¹, and commissioned by AMTA, showing that Australia's economy would be boosted by up to \$10 billion if at least 120 MHz of usable spectrum was unlocked to support mobile applications and services, including mobile broadband use.

As acknowledged in the Green Paper the demand for mobile broadband services is increasing at a significant rate. This is supported by ACMA research showing that during 2008-09 take-up continued across a range of platforms and technologies, with the use of 3G mobile and wireless broadband services growing by 162 per cent. There is no doubt that this is driving the demand for 'smart phones', laptops and notebooks as well as the demand for mobile broadband content.

The Green Paper also recognises the ability of the UHF spectrum to carry signals over long distances, delivering cost-effective mobile telecommunications services to regional and remote Australia.

The arguments for use of the digital dividend spectrum for mobile telecommunications are compelling and immediate.

¹ Spectrum Value Partners, 'Getting the Most out of the Digital Dividend', April 2009

The Ai Group is also aware that the CSIRO is developing new technologies relating to fixed wireless broadband local access for use in fringe and sparsely populated areas of Australia. It is understood that this technology can coexist with mobile wireless technology therefore it has the potential to increase spectrum efficiency of the Digital Dividend.

There is an expectation that ACMA will be charged with the task of ensuring the economic gain will be maximised, together with the efficient planning of the digital dividend spectrum.

The same level of scrutiny should be applied to the planning of the 224 MHz of spectrum that remains designated as broadcast services bands. These bands include VHF Band III (174-230 MHz) and UHF Band IV (526–582 MHz).

The Green Paper refers to a report by Kordia Pty Ltd which states that it is 'possible for 126 MHz of UHF spectrum to be released as digital dividend, assuming the provision of up to six in-home digital television stations nationwide'. This is commonly called the "five plus one" broadcast planning scenario, representing channel allocations for the two national broadcasters and three commercial broadcasters plus one additional channel nationwide. This one additional channel has been temporarily allocated in Perth, Melbourne, Sydney, Brisbane and Adelaide for community television.

Ai Group is advised by Broadcast Australia that it is possible to release the same 126 MHz of UHF spectrum for digital dividend and provide for up to seven digital television stations. This is the "five plus two" broadcast planning scenario. Broadcast Australia's planning also provides for the expansion of digital radio into regional areas.

Ai Group submits that the "five plus two" broadcast planning scenario will maximise the spectrum efficiency of the remaining broadcast services bands. A "five plus two" scenario will deliver the Government more options for the development of the broadcast services bands, especially as the longer term arrangements for community television have not yet been decided.

The "five plus two" scenario provides the Government with an opportunity to use the additional channel to introduce broadcast mobile TV, provide a transitional path to

MPEG4, continue the expansion of High Definition services and the capability to seed the development of 3D TV on the terrestrial platform.

Transition to DVB-T2 with MPEG4 encoding is being considered by governments around the world to gain greater spectrum efficiency and by terrestrial broadcasters to meet consumer demand for new services and features such as 3D TV. If the Australian Government was to also consider a transition to DVB-T2 with MPEG4 encoding, three high power channels would be required to allow a simulcast period with DVB-T services. This would require a “five plus three” scenario, with a 7 MHz channel being planned at the lower end of the digital dividend spectrum. A “five plus three” scenario could only be supported by Ai Group if the additional 7 MHz channel was able to be planned within the minimum spectrum requirements for mobile telecommunications and wireless broadband services.

In summary, Ai Group submits that the Government should maximise the economic and productivity benefits of the digital dividend by:

1. Allocating a minimum of 120 MHz of the digital dividend spectrum for mobile telecommunications and wireless broadband services
2. Implementing a “five plus two” broadcast planning scenario to provide greater flexibility in the development of broadcasting services, recognising the significant and increasing consumer demand for High Definition services, and from 2010, 3D TV.
3. Plan for spectrum needs of future technologies (such as Transfer Jet) including any necessary arrangements for access to spectrum currently allocated for Government use.

Need for a restacking communications strategy

As set out in the Green Paper, the main impacts on viewers of restacking of the remaining digital broadcasting services to new frequencies will be:

1. In all markets where frequencies are restacked, viewers will be required to rescan their digital TV receivers to continue to receive all the available digital television services
2. In a number of cases, viewers in those markets may also be required to replace antennas
3. Viewers in multi-dwelling unit buildings with an MATV system reliant on

channel processing installed may need to have the channel processor retuned or, at worst, replaced

1. Issues related to rescanning of receivers

As many digital TVs and set-top boxes automatically perform a channel scan at the time of first operation in the home, a channel rescan is likely to be a very new experience for the viewer. It is generally not a single button command and requires the viewer to progress through a number of set-up menu items.

Some digital TVs and set top boxes also may require the viewer to revert to a factory default setting prior to commencing the channel rescan. The selection of menu commands and the time taken to complete the rescan can vary between brands and product models.

There is no doubt that a channel rescanning process will place increased demand for supplier help-line support from viewers who may not be aware of the need to rescan or are unable to manage the process.

While auto-scan within channel is possible and it is a feature that many suppliers already incorporate, the dynamic rescan of all channels in the broadcast services band is problematic.

There is industry concern that a dynamic rescan function may cause the receiver to select an unwanted channel or lose a wanted channel where the viewer lives in an area of low signal strength or in an area receiving multiple signals from neighbouring areas. A good example of such an area is Penrith, in Sydney's west. Television services are being received from Sydney and Wollongong at varying signal strengths. A dynamic rescanning would cause the viewer to gain and lose services on a regular basis.

It would be far more productive for the Government to provide viewers with detailed information on the timing of restacking, the markets affected and the services in that market that will be changing frequencies. In much the same way that consumer information about digital switchover has been provided by Government, the digital restacking process will need to be supported by a concerted Government education campaign. This will require funding for a well-directed media campaign, local letter-box drops and a well-resourced consumer help desk and call centre.

A similar model was managed by the free-to-air broadcasters when addressing the interference to VCRs caused by the digital broadcasts on UHF channels 36, 37 and 38 in specific regional areas.

Without a government funded and managed restacking communications strategy, the viewer assistance costs of restacking will be unfairly borne by suppliers and retailers.

2. Replacement of antennas

Typically the UHF antennas sold in Australia are wideband, providing good digital TV reception across UHF Bands IV and V. However, narrowband antennas may have been installed to improve TV reception in areas of poor signal quality.

There is an urgent need to provide antenna manufacturers, wholesalers and installers with channel plans in those areas that will be affected by digital restacking (and in particular those areas where all services are moving from high band V to band IV or band III) to ensure narrowband antennas are not installed where inappropriate for longer term use.

3. Channel processors in multi-dwelling units

In many medium and high-rise multi-dwelling units, channel processors have been installed to improve the quality of the digital TV signal being distributed through the building. Ai Group is advised that many new channel processors are frequency agile within a part of the band. However, some may not be able to be adjusted from Band V to Band IV and others may be using fixed frequencies.

At best, these multi-dwelling units will need to have an experienced Master Antenna TV (MATV) installer provide a service call to adjust the channel processor. At worst, a new channel processor will need to be purchased and installed for each channel that is restacked. The cost is estimated to be between \$1,100 and \$1,500 per processor, per channel.

As a number of multi-dwelling units are currently engaging MATV installation companies to get their buildings ready for digital switchover, it is again critical to provide information to building managers, bodies corporate and strata managers to ensure their MATV systems are also designed to be ready for digital restacking. In summary, Ai Group submits that the Government should develop a well funded digital restacking communications strategy to:

1. Assist viewers with the rescanning process, via local advertising, a well-informed telephone help-desk and letterbox drops

2. Provide television and antenna suppliers, wholesalers, retailers and installers with finalised channel plans for each market that will be affected by digital restacking
3. Provide specific information to building managers, bodies corporate and strata managers about the installation of digital channel processors in MATV systems

Interference to televisions

The restacking of UHF band V channels will lead to spectrum currently designated as broadcast services bands being allocated for other technology uses.

There may be some risk associated with existing in-field TV receivers which have been designed for the current broadcast frequency band. It is still unclear how such equipment might react to signals being broadcast by new devices using such spectrum, with the potential for interference/cross-talk. This is because mobile devices are usable at a short distance from the television set.

Tests undertaken by Agentschap Telecom of the Netherlands showed that “there are high interference probabilities and that the standard configuration is not sufficiently immune to interference”². Due to the very small number of random tests the conclusions are approximate. However one of the conclusions of the report was that “if an LTE mobile phone with a transmitting power as indicated in the draft EC Decision is used at a distance of 3 meters from the television set, interference will be caused in three out of four of the television sets based on a standard configuration”. Other international studies³ also based on relatively small samples in a cable TV environment conclude that there is some risk of interference. However as the distances between the mobile device and TV equipment are small, the interference will normally be between the user’s mobile device and their own TV equipment and not necessarily the equipment of neighbours and other televisions in the household. Once the digital dividend spectrum has been planned for purposes other than

² “Study of interference to digital cable TV caused by 800 MHz mobile LTE applications” – Agentschap Telecom (27 November 2009)

³ “Immunity of cable TV networks to mobile broadband networks in the digital dividend spectrum in Europe” - GSMA (10 February 2010)

“Immunity of integrated TV receivers, set top boxes and data modems connected to broadband cable and TV networks against radiation from LTE user equipment” – BnetzA Germany (28 January 2010)

“Shielding Effectiveness of In-Home Cable TV wiring and splitters” - Motorola Whitepaper

broadcasting, it will be necessary for the Government to undertake testing using specific interferers to assess the impact on a range of TV receivers in the market.

In summary, Ai Group submits that the Government should:

1. Recognising the global nature of mobile and TV device design and manufacture, review existing and ongoing worldwide research and consider funding Australian research that tests (i) devices that could possibly cause interference into television sets, and (ii) susceptibility of television sets to such interference. This research could be a valuable input to the spectrum planning and allocation process.
2. Provide information to suppliers of new mobile equipment on how to best address the potential interference to television sets from their mobile devices.

Remedies

In conclusion Ai Group submits that:

1. The Government can maximise the economic and productivity benefits of the digital dividend by:
 - Allocating a minimum of 120 MHz of the digital dividend spectrum for mobile telecommunications and wireless broadband services
 - Implementing a “five plus two” digital television broadcast planning scenario to provide greater flexibility in the development of broadcasting services
 - Reserve up to three VHF TV channels for DAB+ as part of the restacked spectrum.
2. The Government should develop a well funded digital restacking communications strategy to:
 - Assist viewers with the rescanning process, via local advertising, a well-informed telephone help-desk and letterbox drops
 - Provide television and antenna suppliers, wholesalers, retailers and installers with finalised channel plans for each market that will be affected by digital restacking
 - Engage with those sectors of the industry affected by the relocation of

spectrum, such as wireless audio devices.

3. The Government should:

- Consider funding for research that tests devices that could possibly cause interference into television sets, and the susceptibility of television sets to any such interference. This research could be a valuable input to the spectrum planning and allocation process.
- Provide information to suppliers, installers and consumers on how to best insulate their television system from interference from mobile devices.

RELEVANCE TO THE AUSTRALIAN ECONOMY

Mobile telephony is now a critical service in Australia. Many homes do not use a fixed-line telephone today, and rely completely on mobile phones. The mobile phone is a critical business tool, greatly increasing the productivity of mobile workers.

Perhaps more importantly, broadband services offered over the mobile network are becoming increasingly critical for many industries – both from productivity increases from technology users and also the growth of IT companies developing and selling new mobile applications.

There has been an explosion in the demand for mobile telephony and broadband service in recent years and this has left the major carriers struggling to grow capacity and impacting investment in the sector. The frequencies proposed are lower than any used in the industry today and lower frequencies offer both greater range, and better penetration of obstacles. Thus they have a particular importance role to regional development and investment.

Fixed wireless broadband is unlikely to affect the economic impact or value of the National Broadband Network. Wireless and fibre technologies represent a quite different value propositions. In the locations where NBN is unable to provide economic coverage, wireless solutions (be they fixed or mobile) are likely to play a role. Fixed wireless technologies are also likely to be able to compete head-to-head with fibre for some applications in both the residential and business sectors, unless the fibre connections are heavily subsidized.

ABOUT Ai GROUP

The Australian Industry Group (Ai Group) is a leading industry association in Australia. Ai Group member businesses employ around 750,000 staff in an expanding range of industry sectors including: manufacturing; engineering; construction; automotive; food; transport; information technology; telecommunications; call centres; labour hire; printing; defence; mining equipment and supplies; airlines; and other related service industries.

In response to the *Digital Dividend Green Paper*, Ai Group conducted industry consultations with members of our Australian Digital Suppliers Industry Forum and the Telecommunications Services Member Reference Group.

Australian Digital Suppliers Industry Forum

The Australian Digital Suppliers Industry Forum (ADSIF) responds to needs from the suppliers of digital television and radio products for a more coordinated approach in addressing the planning and implementation issues related to digital television and radio in Australia.

Membership ranges from the major global manufacturers to small Australian-based suppliers of digital broadcasting products and services.

ADSIF objectives are to:

- (i) provide a powerful voice for manufacturers and suppliers of digital products to government and broadcasters on issues relating to digital broadcasting in Australia; and
- (ii) coordinate industry/government programs that promote the uptake of digital broadcasting services.

Telecommunications Services Member Reference Group

The Telecommunications Services Member Reference Group is a representative body within Ai Group used to convene industry leaders from the telecommunications sector for the purpose of identifying current industry issues that impact members.

The objectives of this member reference group are to represent and articulate the views of the telecommunications sector and on their behalf, to advocate and aid the development of the industry.

CONSULTATION PROCESS

Following the release of the Digital Dividend Green Paper, the Ai Group held a joint meeting of members of the Australian Digital Suppliers Industry Forum and the Telecommunications Member Reference Group.

The meeting was co-chaired by Mr Ross Henderson (Chair of the Australian Digital Suppliers Industry Forum) and Dr Eric Heyde (Chair of the Telecommunications Services Member Reference Group).

Member companies represented at the meeting included Telstra Corporation, Cirrus Communications, Samsung Electronics Australia, Panasonic Australia, Standard Communications, Hills Industries, Rohde & Schwarz Australia, Matchmaster Communications and Australian Digital Testing. The Australian Mobile Telecommunications Association (AMTA) and Broadcast Australia Pty Limited also attended to provide additional perspectives to the discussion.

The decisions of the meeting and the draft response were provided to the wider Ai Group membership with further contributions by Telstra, Sony Australia and Ericsson Australia and the CSIRO.

The following response therefore represents a collective view of major companies involved in the telecommunications sector and in the manufacture and supply of televisions and antennas. We believe this is unique to the consultation process.