



Wireless Audio Devices and the Digital Dividend

Introduction

Currently, a large number of wireless audio systems and devices operate within the frequency range 520-820 MHz. This frequency range is the same as that used by television broadcasting. The wireless audio systems are low power, and are allowed to operate under a class licence in the unused television channels.

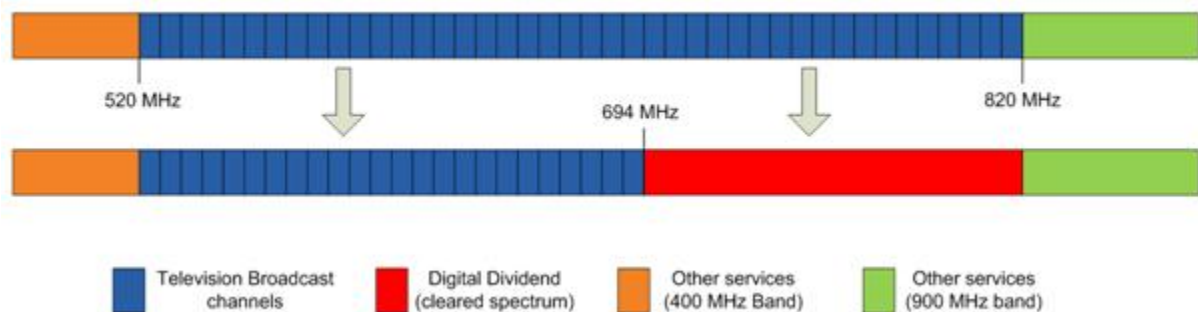
Television services are currently in the process of changing over from analog to digital. This switch-over will change the ranges of frequencies that television services use, and will therefore affect the spectrum available for wireless audio equipment.

This web page provides users of wireless audio equipment with information on the analog-to-digital television changeover process and how it might affect the use of their equipment.

What is happening?

Television is currently being broadcast on frequencies between 520MHz and 820 MHz. On 24 June 2010, the Minister for Broadband, Communications and the Digital Economy announced that by switching from analog to digital television, 126 MHz of this spectrum would be cleared in Australia. This means that after the changeover, from analog to digital television, only the range 520-694 MHz will still be used for television broadcasting, while the 694-820 MHz range will be made available for other services. This change over date is likely to take place on the 31st December 2013.

This is how the current and future broadcast spectrum will look.



You can find out more about the Digital Dividend from the Australian Media and Communications Authority (<http://www.acma.gov.au>)

What is the digital dividend?

The block of spectrum which will be cleared through the switch-over to digital television is often referred to as the "digital dividend".

The digital dividend spectrum is able to be cleared because digital television broadcasting can be used more efficiently than corresponding analog services. Currently both digital and analog television services are being broadcast, with the analog services being progressively switched off on a region-by-region basis across Australia. More information on the **switch-off of analog television is available**.

The diagram above shows the use of the affected part of the spectrum before and after the digital switch-over.

When are the changes happening?

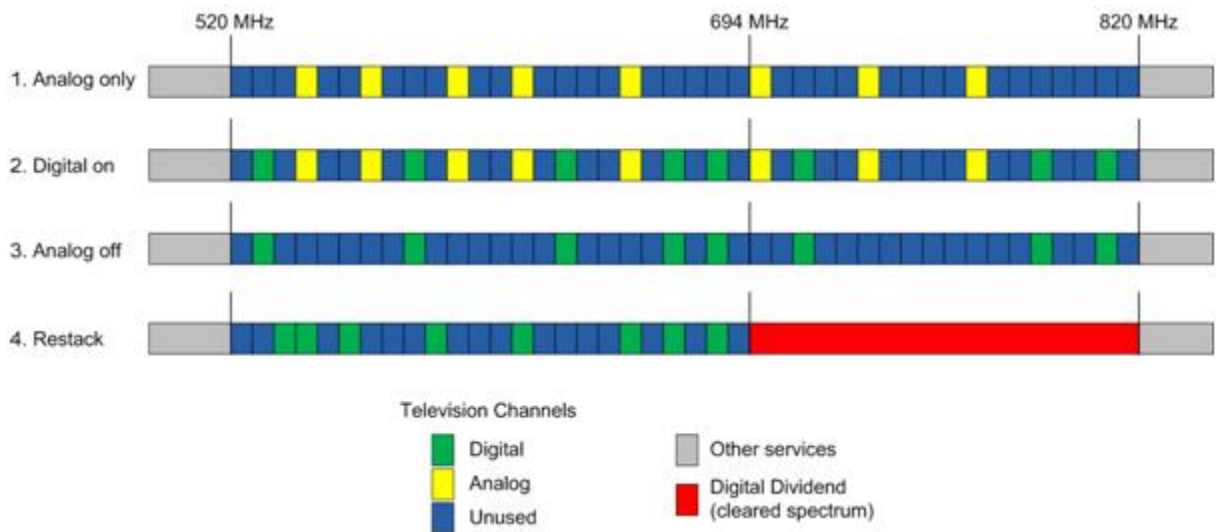
There are two phases to the digital television switchover that need to be completed before the digital dividend spectrum will be clear and available for other uses. The first phase is the switch-off of analog television services. This is being done on an area-by-area basis, with the final regions to be switched off by 31 December 2013.

After the switch-off is complete, there will still be digital television channels operating in the digital dividend frequency range. The second phase is known as the "restacking", where all of the digital channels will be moved so they all operate below 694 MHz. This process will also be done over a period of time on an area-by-area basis with the current target date for completion being the end of 2014.

Therefore, there is still another 3 to 4 years before the clearance of the digital dividend spectrum will be complete. It should be noted that due to the area-by-area switchover, it is possible that some of the areas that are 'restacked' earlier may be made available before the process is completed everywhere else.

The diagram below gives an example, illustrating how the use of the spectrum will change step-by-step through the switch-over process.

1. Analog television operating only.
2. Digital television begins. Both analog and digital television in operation at once.
3. Analog television finishes. Only digital remains operating.
4. Digital channels are all relocated to be operating below 694 MHz. Digital dividend is now cleared, and ready for use by other services.



What frequencies will be available for audio equipment after the switchover?

There will be two major blocks of spectrum which wireless audio equipment may be allowed and able to operate in:

1. 520-694 MHz (Remaining broadcasting spectrum)

The frequencies from 520-694 MHz will continue to be used for terrestrial broadcasting, and the ACMA expects that the unused TV channels or 'white spaces' in this range will still be available for use by wireless audio equipment, in the same way as they are at the moment.

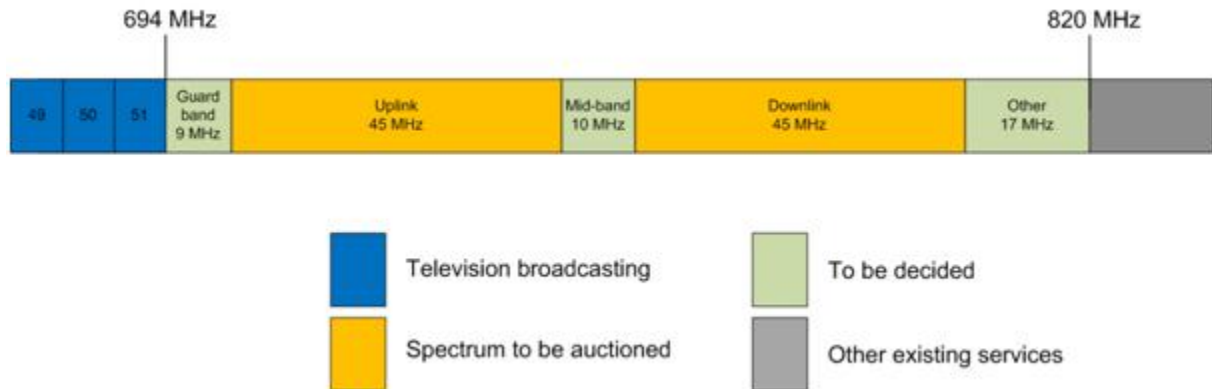
Note that the specific arrangements of channels which will be used by digital television after the restack is still under consideration. The specific frequencies (channels) that are available in any given area at the moment may not be the same as those that will be available following the switchover.

2. 694-820 MHz (Digital Dividend spectrum)

Much of the 126 MHz of spectrum is likely to be used for next generation mobile broadband services, such as LTE and 4G.

The ACMA are currently working towards a decision on how this block of spectrum will be divided up, used and allocated to new services. Currently, Australia is following - and participating in - international discussions working towards creating a common band plan across most of the Asia-Pacific region. Adoption of a plan harmonised with other countries will allow for cheaper equipment for users and service operators through creation of economies of scale, as well as simpler and wider roaming capabilities for users.

One of the APT plans is to implement 2 x 45 MHz blocks of spectrum, with a 10 MHz mid-band gap, and guard bands at either end. Using this plan - or something similar - both the mid-band gap and the guard bands are potential segments of spectrum which could be used for wireless audio equipment, subject to further technical studies and discussion. The diagram below illustrates this potential arrangement of the band.



Will my audio equipment still work?

This depends mainly on what range of frequencies your equipment is able to operate over. Equipment which operates below 694 MHz should be able to operate just as it does at the moment, unless it happens to fall within a range that the digital channels get 'restacked' to. For devices which operate only above 694 MHz, it will depend on the final arrangements decided on for the digital dividend spectrum.

When will we know more specific details of the spectrum is available for the equipment?

In 2011, the ACMA plans to begin technical discussions with any interested and affected stakeholders regarding details of the use of the band 694-806 MHz. This will include consideration of the possible use of wireless microphones. Outcomes of these discussions will be used by the ACMA to assist in planning for the use of the digital dividend.

The ACMA will also continue to engage with the wireless microphone industry, on an ongoing basis, throughout the rest of the planning process. In particular through industry representative groups, such as the Australian Wireless Audio Group (AWAG).

What if I want/need to buy new equipment now?

We have two recommendations:

1/ Purchase product that has been tuned to operate in the 520MHz – 694MHz range. This is the range in which products posts digital dividend can be used (subject to the usual LIPD licence arrangements of these devices not operating on or interfering with TV broadcasts)

2/ Purchase a product with as much tuning 'agility' as you can afford. This means a product that has as wide a tuning ability as possible. The result being that you are more likely to find spectrum that is not occupied by a TV station. The issue here is that we do not yet know precisely where within the 520MHz - 694MHz range the TV stations will be allocated

Your retailer will be able to advise you of the products now on the market that operate in the 520-6894MHz spectrum and how 'agile' each of the devices are.

The equipment supplier and/or manufacturer should also be able to assist you with details of specific equipment you may own or need.

How do I find out what spectrum/frequencies are available in my area?

Information on the frequencies/channels that are currently occupied by broadcast services can be found in the **Digital Channel Plans**, available on the ACMA website.

Since restack planning is not yet finalised, the frequencies/channels that will be occupied after the switchover is complete are not yet known.

Who should I contact for more information?

The Australian Wireless Audio Group (AWAG) are an industry representative group for users and suppliers of wireless audio equipment in Australia. AWAG have actively provided input to the digital dividend planning process already through responses to government discussion papers and direct discussions with the ACMA. These discussions will no doubt continue throughout the planning process.

Your equipment supplier and/or manufacturer should also be able to assist you with details of specific equipment you may own or need.

You can contact AWAG via the Australian Music Association on 03 9527 6658 or via radiomic@australianmusic.asn.au

Summary of major points

- Wireless audio equipment currently shares spectrum with television (520-820 MHz)
- Following the switch-over from analog to digital television, the range 694-820 MHz will be cleared
- 520-694 MHz will continue to be used by television, and it is expected that wireless audio equipment will continue to operate in this range under similar arrangements to the current LIPD licence
- 694-820 MHz will be replanned, and allocated to other uses
- The precise details of the use of wireless audio equipment in this range into the future are unknown at this stage. Planning is ongoing
- The ACMA's target date for completion of the digital switch-over process is the end of 2014
- The wireless audio industry will continue to be consulted throughout the planning process, in particular through AWAG.