



FreeTV
Australia

**Submission by
Free TV Australia Limited**

Temporary trials of 3D TV and other
emerging technologies

Australian Communications and Media
Authority

20 October 2010



TABLE OF CONTENTS

1 EXECUTIVE SUMMARY 2

2 INTRODUCTION..... 3

3 THE 3DTV ENVIRONMENT IN AUSTRALIA 3

4 SUITABILITY OF FRAME-COMPATIBLE AND NON-FRAME COMPATIBLE APPROACHES IN THE AUSTRALIAN BROADCASTING ENVIRONMENT 5

5 WHETHER 3D TRANSMISSION TECHNOLOGY IS STABILISING AND WHEN TECHNICAL STANDARDS FOR CONSUMER EQUIPMENT MIGHT BE COMPLETED 6

6 LIKELY DEMAND AND AVAILABILITY OF 3D CONTENT DURING AND BEYOND THE DIGITAL TRANSITION PERIOD OF THE NEXT TWO TO THREE YEARS..... 6

7 OTHER ASPECTS OF 3DTV, INCLUDING OBSERVATIONS ON THE DIFFERENT ENVIRONMENTS PRESENTED BY SATELLITE AND CABLE DELIVERY AS WELL AS THE APPLICATION OF 3D TECHNOLOGY IN MOTION PICTURES, DVDS, BLU-RAY AND COMPUTER GAMES 9

8 INDICATE THE LIKELY LEVEL OF DEMAND FOR ACCESS TO SPECTRUM TO CONDUCT FURTHER 3D TRIALS 10

9 IDENTIFY THE EVENTS FOR WHICH THEY MIGHT CONSIDER CONDUCTING FURTHER TERRESTRIAL BROADCASTING TRIALS OF 3D TV, SHOULD THE ACMA ISSUE A CALL FOR EXPRESSIONS OF INTEREST LATER IN 2010..... 10

10 BEST METHOD OF MANAGING INDUSTRY INTEREST IN USING THE TEMPORARILY AVAILABLE BSB SPECTRUM FOR THE PURPOSES OF CONDUCTING TRIALS OF 3DTV 10

11 NOMINATE NEW RADIOCOMMUNICATIONS TECHNOLOGIES APART FROM 3DTV FOR WHICH THEY MIGHT CONSIDER CONDUCTING TRIALS USING TEMPORARILY AVAILABLE BSB SPECTRUM..... 11

12 ISSUE OF CONSUMER EXPECTATIONS SURROUNDING 3D TV – WHETHER THERE IS A RISK THAT CONSUMERS WILL INVEST IN 3D TV SETS ON THE UNDERSTANDING THAT 3D BROADCASTS WILL BE ONGOING, AND IF SO, WHAT MEASURES MIGHT BE ADOPTED TO HELP ENSURE THAT THOSE INTERESTS ARE PROPERLY PROTECTED 11

1 Executive Summary

- 3D TV is a compelling and immersive viewer experience and its growth in 2010 has been strong.
- 3D cinema content has proved extremely popular and there have been 3D television broadcasts of key sporting events across the globe. 24-hour 3D broadcast channels have also established themselves as serious commercial propositions.
- In Australia, recent 3D television broadcast trials conducted under ACMA trial licences have delivered a completely new viewing experience while attracting strong media and consumer interest. Free TV welcomes ACMA's interest in exploring issues relevant to the exercise of its licensing powers.
- Whilst many of the overseas 3D services are provided on a subscription basis, this should not preclude the availability of 3D content to Australian terrestrial free-to-air viewers.
- Australia has one of the highest levels of reliance on free-to-air television in the world. It is vital that a path to 3DTV on terrestrial free-to-air television is assured early, so that Australians can enjoy the benefits of this technology via the platform they prefer and in the vast majority, rely on.
- When the broadcasting services bands are redefined with an upper limit at 694 MHz there will be no spectrum available to permit future technology migration.
- Unless some spectrum from the digital dividend is retained for future technology migration (including a simulcast), free-to-air broadcasters' ability to provide free programming in 3D and transition to other innovative new formats will be significantly constrained.
- This submission addresses these issues and the detailed questions raised by the ACMA to help inform itself as to the proper use of its powers to allocate scientific trial licences.
- With regards to the specific issues raised by the ACMA, whilst commercial free-to-air broadcasters have no definitive plans to conduct further 3DTV trials in the immediate future, there is the possibility that individual broadcasters may wish to apply to telecast major events in 3D in the future.
- The 'frame compatible' (or '3DTV1') approach has been preferred in Australian trials (and worldwide) due to the ability to re-use existing transmission systems.
- Free TV also supports efforts to develop well defined and documented technical standards for 3D TV and sees a crucial role for industry in the development of such standards in Australia.
- Industry is well equipped to manage overlapping demands for trial spectrum. Spectrum sharing arrangements in the 2.5 GHz band demonstrate that demand issues can be effectively managed amongst licensees.
- Free TV understands the need to carefully manage consumer expectations regarding the trials and the future availability of 3D terrestrial television broadcasts and notes steps undertaken by the trial licensees to inform viewers of the conditions of the trials.

2 Introduction

Free TV Australia represents all of Australia's commercial free-to-air television broadcasters. Free TV welcomes the opportunity to comment on the Australian Communications and Media Authority's (ACMA) Discussion Paper *Temporary Trials of 3DTV and Other Emerging Technologies*.

This submission addresses the specific issues raised in the ACMA's Discussion Paper regarding the development of 3D broadcasting and the recent trials. Free TV welcomes the ACMA's efforts to inform itself of the current market, technological and consumer issues relevant to the exercise of its power to issue scientific licences for the trial of 3D TV and other emerging technologies.

However, Free TV would also like to address some of the broader issues which will affect the availability of 3D television content to Australian audiences and this submission therefore explores the 3D free-to-air television environment.

- Section 3 – the 3DTV environment in Australia
- Section 4 – frame and non-frame compatible approaches
- Section 5 – technical standards for 3D TV
- Section 6 - likely demand and availability of 3D content
- Section 7 – other aspects of 3DTV
- Section 8 – likely demand for further trial licences
- Section 9 – events which may be broadcast in 3D under trial licences
- Section 10 – managing industry interest in temporarily available spectrum
- Section 11 – other technologies which may be trialled
- Section 12 – consumer expectations

3 The 3DTV environment in Australia

The increasing development and release of 3D movies and computer games will lead to an audio-visual environment in which consumers expect access to 3D content across media platforms.

The availability of good quality, compelling 3D TV content will be one of the key determinants of 3D TV's future and this is explored in further detail below. However, consumer take-up will also depend on the ease with which the content can be accessed in the home and in Australia, that means that the future of 3D TV will depend on the extent to which it is available on free-to-air terrestrial television.

Free-to-air television remains the most important audio-visual platform for Australians. Free TV is in 99.7% of homes. According to the ABS, watching TV is Australia's most popular leisure activity and ratings figures continually demonstrate that the vast majority of TV viewing is spent watching Free TV. Free-to-air channels account for about 84% of all metro and regional nightly viewing.¹

¹ Think TV Year in Review 2009 - http://www.thinktv.com.au/media/Homepage/Year_In_Review_2009.pdf

Free-to-air television is also the foundation of Australia's content creation industries. Every year, commercial free-to-air broadcasters produce more than 500 hours of original Australian drama and invest almost \$900 million a year in original Australian programming including drama, children's programs, documentaries, sport, news and current affairs.² Screen Australia's national production survey shows that in 2008-09, as in previous years, the largest contribution to the combined TV drama slate came from the commercial free-to-air broadcasters. No other platform has contributed or is likely to contribute in the future to Australian content in this fashion.

If free-to-air television is denied a role in the distribution of 3D television content, there will be serious implications for the ability of Australia's screen industries to participate in 3D content creation into the future.

It is vital that a path to 3DTV on terrestrial free-to-air television is assured, so that Australians can enjoy the benefits of this technology via the platform they prefer and rely on. The migration path for terrestrial free-to-air television needs to be identified early, through appropriate policies regarding standards, licensing and spectrum.

The Government and regulators need to create an environment in which technology and innovation can develop freely. This must include the availability of suitable spectrum for 3D TV and/or new and emerging transmission and compression technologies (DVB-T2 and MPEG-4).

Free TV believes the Government should retain some spectrum in the Digital Dividend to enable viewers to continue to receive the latest technologies for free. Whilst this issue was not raised in the ACMA paper, it is critical to the future of 3D TV in Australia.

If the broadcasting services bands are redefined with an upper limited at 694 MHz, there will be no remaining spectrum available to permit future technology migration, as there was for the conversion from analogue to digital television. Broadcasters would not be able to trial or simulcast new technologies without disrupting existing services. Because of the impact on households with legacy reception equipment, a transition to new standards, such as 3D TV, DVB-T2 and MPEG-4 cannot occur without a reasonable period of simulcast. Otherwise many viewers face a loss of or unacceptable interruption to free-to-air television services. Under the Government's 126 MHz Digital Dividend, broadcasters will have no capacity to simulcast.

These constraints will not apply to competing platforms such as pay TV and IPTV. Viewers should not be forced to pay for these enhancements.

The ability of Australian broadcasters to provide programming in 3D, and other innovative new formats will be severely constrained unless some spectrum is retained for future technology migration (including simulcast).

Free TV urges the Government to consider retaining a small amount of Digital Dividend spectrum to allow free-to-air broadcasters to transition to future technologies and compete with the ever expanding range of media options. A transition to new technologies in future will allow more consumer choice, increased diversity, extra business opportunities and, over time, more efficient use of spectrum.

This approach would be consistent with the approach taken towards spectrum planning for other communications services, such as telecommunications and mobile broadband, where spectrum has been planned according to the need to develop and transition to new technologies.

² ACMA Broadcasting Financial Results 2007-08

This will be a key policy decision for Government as it balances the spectrum needs of the broadcasting and wireless industries.

The Government and the ACMA must also help facilitate industry involvement and cooperation as regards other key areas of 3D TV, namely standardisation, consumer issues and regulatory considerations.

4 Suitability of frame-compatible and non-frame compatible approaches in the Australian broadcasting environment

We note the ACMA Discussion Paper uses the terms 'frame-compatible' and 'non-frame compatible' when distinguishing between technical approaches to the delivery of 3D Television.

Commercial free-to-air broadcasters submit that the DVB terminology should be adopted in this and future discussions regarding 3DTV. Every 3D event being broadcast on an FTA or Pay TV network anywhere in the world today is a **3DTV1** solution. 3DTV1 refers to the specification that can be used with existing DVB-based digital HDTV broadcast or cable distribution infrastructures for the broadcast channel and currently used set-top boxes.

Under this approach, the content is only watchable in 3D mode (and hence, with a 3D TV set). If the content is also required to be watchable in 2D, it must be broadcast on a separate channel.

In favour of this approach however, is that the content is able to be delivered over the existing transmission infrastructure (with upgrades to encoding equipment where appropriate). This has been crucial in Australian broadcasters choosing this technology for their trial broadcasts to date.

It should also be noted that the European standards body, DVB, have indicated that a 3DTV1 standard will be ready by the end of November (refer to discussion of standards in section 4 below).

A **3DTV2** solution is understood to be under development but may be at least 5 years away from being a commercial reality. This refers to the specification that can utilise new technologies to provide an efficient broadcast solution to the best quality 3DTV solution that can be provided. As noted in the ACMA paper, this involves the broadcast of the normal 2D HD signal, with some additional 3D 'depth' information also being transmitted (ie, not requiring a separate broadcast signal).

The timeframes published by the DVB show that 3DTV2 specifications would not be available until 2013, and then there may be another one to two years before commercially viable hardware and systems become available, let alone consumer products.

Technically, this may be feasible. Practically, however, broadcasters are rapidly learning that production and presentation of 3D sports coverage is quite different to normal HD sports coverage, using cameras mounted low and close to the action, and dwelling on shots much longer ('low and slow'). 3D coverage requires completely different production techniques and this is not expected to change in the near term.

This then requires two HD signals to be transmitted (one for 2D and one for 3D) so regardless of the technical specification being used, extra spectrum will be required for

these kinds of broadcast. 3DTV2 may be more successful when considering a piece of content shot in a way to support both 2D and 3D.

5 Whether 3D transmission technology is stabilising and when technical standards for consumer equipment might be completed

3D TV, like all other forms of broadcasting, must be based on well defined and documented technical standards.

The DVB organisation has announced that its technical work on a first 3DTV standard for governing signals and captions is to be completed by November 2010. The standard is based around the use of an existing set-top box, will specify the delivery of left and right images and will use a spatial multiplex system to signal what each HDTV frame contains.³ The DVB said its finalisation would likely follow approval of the commercial requirements for a frame-compatible 3DTV system.⁴

It is understood that a second level standard based around a full bandwidth system for both eyes that presumes a new STB and backward compatibility with 2D is also being developed.

The development of a stable and robust standard will be vital to the development of the 3D TV platform in Australia and will help ensure consumers aren't faced with competing formats. Free TV submits that as with the development of digital television standards, the market and industry should lead the development of acceptable solutions to standardisation and technical issues. Regulatory intervention is not warranted unless there has been a market failure in this regard.

Free TV Australia is confident that the existing structures for standardisation in Australia and the industry-managed supporting processes would be the most appropriate and effective forum for 3D TV standards to develop.

This framework has sufficient expertise and resources to develop standards which meet international best practice. The consultative and flexible nature of these structures allows industry to respond quickly to the constantly evolving specifications of digital broadcasting platforms.

6 Likely demand and availability of 3D content during and beyond the digital transition period of the next two to three years

As with other emerging television technologies, such as High Definition, the availability of content and consumer demand will have an interactive relationship – as the availability of compelling, quality 3D content grows, so will consumer demand, in turn driving the further development of content.

The availability of suitable receiver technology will also have a critical impact on this cycle and it is fair to say that in Australia, take-up is at the very early stages. In its 30 August 2010 report to the ACMA, the Nine Network⁵ reported that at the start of its

³ 'DVB unveils first 3DTV standard' broadcastnow.co.uk 14 September 2010, viewed 7 October 2010

⁴ 'DVB Plans to Complete 3DTV Spec by November' tvtechnology.com 15 September 2010, viewed 7 October 2010

⁵ 'Report to the Australian Communications and Media Authority – Nine Network Australia – 3D Trial #1' 30 August 2010
http://www.acma.gov.au/webwr/assets/main/lib311927/nine_network_aust_3d_report_to_acma.pdf

first trial broadcast, only Samsung was offering 3D TV receivers in volume at retail outlets. Nine reports that Panasonic, LG and Sony subsequently introduced product for sale to consumers and that by the end of the first trial, the following sales had been achieved:

- Samsung – over 12 000 units, with backorders of a further 8 000 units
- Panasonic – approximately 2 500 units
- Sony – approximately 1 000 units
- LG – over 1 200 units, with further backorders.

In terms of future sales, Nine reported comments from Sony Australia that:

- 3D TV technology will become a standard feature in most TV models within 12 months
- Sales of 3D televisions by value in Australia during June/July was 25%
- Sony predicts that 100 million 3D televisions will be sold worldwide in the next three years
- Hence, with approximately 3 million Australian households yet to convert to digital, a substantial percentage of Australian viewers will have 3D televisions by 2014

Some analysts predict 3DTV penetration in the US will reach 20% by 2015, and others suggest that by 2015, 100% of televisions being sold will be 3DTV capable.⁶ This is due to the small cost increment involved in making a 3DTV. Sony and have indicated their aim of having 3D TV sales account for over 50% of their TV offerings by 2012.⁷

Whilst some commentators dismiss consumer demand for 3DTV on the basis of the requirement to wear special glasses, it should be noted that Toshiba has recently unveiled a screen capable of displaying 3D material without the need for the viewer to wear glasses.⁸ Further evolution of the technology should be expected.

It is also important to consider the likely demand for 3D TV content, given the role of content in driving consumer take-up of new entertainment platforms. As noted above, the conduct of trials in Australia will have driven sales of 3D receivers and will therefore have created a small but ready-made audience for future content.

As Australia takes a substantial amount of television content from overseas, it is instructive to look overseas and consider the developments to date. A review of overseas developments suggest considerable growth in demand for and availability of 3D content in the coming years.

Internationally, television manufacturers and content makers have invested considerably in the development of 3D technology and content and audiences have responded positively. Cinema audiences choose to watch a 3D movie (over the 2D version) by around 4:1.⁹ Films in 3D, such as Toy Story 3 and Alice in Wonderland, have helped boost UK box office takings by 8%.¹⁰

⁶ '20% of TVs to ship in 2015 will be 3D, says analyst' Reghardware.com 6 October 2010, viewed 7 October 2010

⁷ 'Sony: 3D TV-Sets May Account for Half of HDTV Sales in Three Years' XBit Labs News online, 30 November 2010, viewed 8 October 2010

⁸ 'No-glasses 3D TV unveiled in Tokyo' Contactmusic news 4 October 2010, viewed 7 October 2010

⁹ 'The Bold New Wave of 3D' ABC Science online 6 October 2010 (viewed 7 October 2010)

¹⁰ '3D films boost UK box office by 8%' BBC Online 13 September 2010, viewed 8 October 2010

The increasing development and release of 3D movies and computer games will lead to an audio-visual environment in which consumers expect access to 3D content across platforms.

In recognition of this demand, many broadcasters around the world have either launched commercial 3D services in 2010 or conducted short-term 3D broadcasts:

- 3D broadcasts began on free-to-air television in Australia in May 2010 with coverage of Rugby League and continued with the FIFA World Cup, and the AFL and NRL Grand Finals
- Sky began 3D broadcasts in the UK on 3 April 2010 with a service available to pubs and clubs which includes film, sport and entertainment programming. The response was immediate, with over 1000 pubs signing up for the launch.¹¹ The service has been available to private subscribers from 1 October 2010 and Sky expects up to 200,000 3D subscribers by mid-2011¹²
- The BBC has indicated it hopes to produce some of the 2012 London Olympics in 3D¹³
- Discovery Europe has received a licence for a 3D channel from UK regulator Ofcom, though no launch date has been announced¹⁴
- US operator DirecTV launched a dedicated 3D channel in June 2010¹⁵
- Cablevision launched a 3D version of its MSG channel in March 2010¹⁶
- ESPN's 3D channel launched on 11 June 2010. It will feature a minimum 85 live sporting events in its first year and started with the 2010 FIFA World Cup on 11 June 2010. Other events to be produced in 3D include the Summer X Games, college basketball and college football¹⁷
- Virgin Media (UK) announced a 3D TV on-demand service on 28 September 2010¹⁸
- Sony has announced a joint-venture with Discovery Communications and IMAX to create a new 24-hour 3D channel that will launch in 2011¹⁹
- The French Open was filmed in 3D and broadcast live via the Internet to Orange subscribers in France.²⁰ Public Broadcaster France Televisions produced some of the 3D coverage of the French Open tournament and the largest commercial broadcaster TF1 offered 3D coverage of several FIFA World Cup matches. 3D broadcasts of the World Cup were also offered by Canal+ and Canal+ have also announced plans for a dedicated 3D channel. France's largest cable operator Numericable launched a demonstrated channel and plans a video-on-demand service by the end of 2010²¹
- Bell TV in Canada launched a dedicated 3D TV channel on 27 July 2010²²

¹¹ 'The future of 3D Sports – Fifa World Cup in 3D' Peter Angell, Presentation to IBC2010 11 September 2010

¹² 'Sky expects up to 200,000 Sky 3D subscribers by mid-2011' Media Week online, 1 October 2010, viewed 8 October 2010

¹³ 'Olympics 'could be shown in 3D'' BBC Online 11 September 2010, viewed 8 October 2010

¹⁴ 'Discovery Europe licensed for 3D' Broadband TV news online, 4 August 2010, viewed 8 October 2010

¹⁵ 'What's the deal with DirecTV's 3D channels' Gizmodo online Viewed 8 October 2010

¹⁶ 'Cablevision to offer 3D programming' CNET News online, 24 March 2010, viewed 8 October 2010

¹⁷ 'ESPN 3D to Show Soccer, Football, More' <http://sports.espn.go.com/espn/news/story?id=4796555>

¹⁸ 'Virgin Media brings 3D to UK living rooms' <http://www.virginmedia.com/movies/features/virgin-media-3d.php>

¹⁹ 'CES 2010: Sony Continues 3D Push' Broadcasting & Cable online, viewed 7 October 2010

²⁰ 'Orange, France Télévisions Expand 3D Coverage of French Open' <http://sportsvideo.org/main/blog/2010/05/21/orange-france-televisions-expand-3d-coverage-of-french-open/>

²¹ 'The Grand Tour of European 3D TV' Broadcasting Cable Online 13 September 2010, viewed 7 October 2010

²² '3D Television is on across Canada on Bell TV' <http://www.bce.ca/en/news/releases/bev/2010/04/09/75443.html>

- Selected parts of the PGA Golf Championship were broadcast in 3D on 13 August 2010 on DirecTV, Comcast, Time Warner Cable and other pay TV channels in the US
- In Germany, pay TV operator Sky Deutschland will be launching a 3D channel in Germany and Austria. Deutsche Telecom is offering 3D movies and documentaries on its video-on-demand service²³
- In Italy public broadcaster RAI has been testing 3D production and is providing 3D programming for a pan-European channel²⁴
- In the Netherlands and Switzerland, 3D coverage of the US Masters Golf was available in April²⁵
- Several matches of the World Cup and French Open tennis were broadcast in 3D in Portugal and Spain²⁶

These developments clearly show that 3D broadcasts are developing as commercial propositions and are likely to establish themselves among the range of audio-visual services available to consumers in the modern media market. As was experienced in the development of HD content, the strong performance of 3D content in cinemas and the fast growing availability of 3D sporting content are likely to be the key drivers of 3D content and consumer demand.

As the availability of 3D content (whether produced locally or overseas) grows, it becomes increasingly important that a transition path for 3D content on terrestrial free-to-air television in Australia is assured.

As noted elsewhere in this submission, Australia has one of the highest rates of reliance on free-to-air television in the world and Australians should not miss out on the increasing range of internationally produced 3D TV content – regardless of whether the content is produced by commercial free-to-air broadcasters, free-to-air audiences will expect to be able to access that content.

7 Other aspects of 3DTV, including observations on the different environments presented by satellite and cable delivery as well as the application of 3D technology in motion pictures, DVDs, Blu-ray and computer games

Free TV notes that many of the 3D services available overseas are being provided by pay TV cable and satellite operators. This is likely due to the ability of pay TV operators to more directly recoup the high start-up costs via direct consumer subscriptions and due to the spectrum implications of simulcasting 3D and 2D content on terrestrial networks.

However, this should by no means preclude the development of 3D content in the Australian terrestrial free-to-air market. Australia has one of the highest levels of reliance on free-to-air television in the world. Free-to-air channels account for about 84 per cent of all metro and regional nightly TV viewing. Pay TV penetration in Australia is well below that of other developed nations at approximately 30%. The vast

²³ The Grand Tour of European 3D TV' Broadcasting Cable Online 13 September 2010, viewed 7 October 2010

²⁴ The Grand Tour of European 3D TV' Broadcasting Cable Online 13 September 2010, viewed 7 October 2010

²⁵ The Grand Tour of European 3D TV' Broadcasting Cable Online 13 September 2010, viewed 7 October 2010

²⁶ The Grand Tour of European 3D TV' Broadcasting Cable Online 13 September 2010, viewed 7 October 2010

majority of Australian households don't have pay TV with close to 70% choosing to rely solely on free-to-air television services.²⁷

Australians have a clear preference free-to-air television as their main source of entertainment, news and sport. The trials of 3DTV during the 2010 State of Origin series were the first of their kind on free-to-air television world-wide, demonstrating that the trend overseas for 3D content to be led on pay TV need not necessarily be replicated in Australia.

As discussed earlier in this submission, it is vital that a path to 3DTV on terrestrial free-to-air television is assured early, so that Australians can enjoy the benefits of this technology via the platform they prefer and rely on. The migration path for terrestrial free-to-air television needs to be identified early, through appropriate policies regarding standards, licensing and spectrum.

8 Indicate the likely level of demand for access to spectrum to conduct further 3D trials

Whilst commercial free-to-air broadcasters have no definitive plans to conduct further 3DTV trials in the immediate future, there is the possibility that individual broadcasters may wish to apply for licences to telecast major events in 3D.

9 Identify the events for which they might consider conducting further terrestrial broadcasting trials of 3D TV, should the ACMA issue a call for expressions of interest later in 2010

Please refer to the answer to question 7, above.

10 Best method of managing industry interest in using the temporarily available BSB spectrum for the purposes of conducting trials of 3DTV

Free TV supports the existing legislative provisions regarding the temporary licensing of scientific trials. Where there is competing demand for spectrum to conduct trials of 3D TV content, Free TV suggests cooperation and coordination between broadcasters and with the ACMA would provide an appropriate means of determining access.

Free-to-air terrestrial broadcasters have demonstrated their capacity to coordinate spectrum sharing through the cooperative approach to the management of the 2.5 GHz band. Networks Seven, Nine and Ten, together with the Australian Broadcasting Corporation, are currently licensed to use the 2.5GHz band for Television Outside Broadcasting (TOB) on an Australia-wide basis. Channel assignments in this band are adjacent, which has allowed the licensees to coordinate and share channels to meet the bandwidth requirements of individual electronic news gathering, TOB and electronic field production operations.

²⁷ OzTAM Universe Estimates Year 2010 – Households (January 2010)

Without sharing of the band it would not be possible for broadcasters to cover events such as the Bathurst 1000 motor race, the Sydney to Hobart yacht race, the Melbourne Cup and the Indy 300, for example. Broadcasters regularly share channels to accommodate the greater bandwidth required to produce high definition material for integration into programs.

This suggests strongly that any challenges created by overlapping demand for access to the temporarily available spectrum could be managed via open coordination between broadcasters and with the ACMA as the licensing authority.

11 Nominate new radiocommunications technologies apart from 3DTV for which they might consider conducting trials using temporarily available BSB spectrum

Because of the impact on households with legacy reception equipment, a transition to new standards, such as 3D TV, DVB-T2 and MPEG-4 cannot occur without a reasonable period of simulcast. Otherwise many viewers face a loss of or unacceptable interruption to free-to-air television services. As noted above, under the Government's 126 MHz Digital Dividend, broadcasters will have no capacity to simulcast.

Whilst there is capacity for broadcasters to trial MPEG-4 broadcasts in temporarily available BSB spectrum (for example, all 3DTV broadcasts have used MPEG-4₂), our clear preference is for some spectrum to be retained permanently for future technology migration (including simulcasts), to address the legacy consumer equipment population.

12 Issue of consumer expectations surrounding 3D TV – whether there is a risk that consumers will invest in 3D TV sets on the understanding that 3D broadcasts will be ongoing, and if so, what measures might be adopted to help ensure that those interests are properly protected

Free TV understands the need to carefully manage consumer expectations regarding the trials and the future availability of 3D terrestrial television broadcasters. To this end, during the recent trial periods, the Nine Network, in conjunction with NBN Television, WIN Television and SBS, conducted a comprehensive information and marketing campaign, in accordance the conditions of the trial.

This included public announcements in the daily newspapers in each market where the trial was being conducted, a series of press releases and on-air advertisements and promotions, a retail information pack, and established a website on the ninemsn portal with general and technical information about the 3D trial. An example of this information is at [Attachment A](#).

It is appropriate that consumer electronics retailers provide information regarding the availability of 3D content on terrestrial television at point of sale. To the extent that retailers did not provide sufficient or accurate information, Free TV supports the involvement of consumer agencies such as the ACCC and Fair Trading organisations, as we have seen recently where a suitable outcome was reached as regards sales of 3D TVs by retailer Bing Lee.²⁸

²⁸ 'ACCC action results in corrective steps by 3D TV retailer' ACCC Press Release NR 209/10 30 September 2010

ATTACHMENT A**CONSUMER INFORMATION**

The Channel Nine **State of Origin** 3D experience

Channel Nine, Harvey Norman and the Australian Rugby League have united in a world first for Australian viewers – the Nine Network's coverage of this year's Harvey Norman State of Origin Series will be the first sporting event ever to be broadcast live in 3D on free-to-air television.

What is 3D television and how does it work?

3D television employs techniques of 3D presentation or 2D plus depth - this provides viewers with a realistic three dimensional field.

3D technology merges two slightly different camera angles of an image and presents them to the viewer as one. When this image is viewed through specially designed glasses, it will appear exaggerated – giving the viewer a sense of depth and dimension and literally putting you in the best seat in the house.

RELATED LINKS

[Nine to broadcast State of Origin in 3D State of Origin](#)

When will the first event be captured in 3D?

Channel Nine will broadcast all three Harvey Norman State of Origin matches between NSW and QLD in 3D. This will begin with:

Game one: ANZ Stadium, Sydney, May 26

Game two: Suncorp Stadium, Brisbane, June 16

Game three: ANZ Stadium, Sydney, July 07

Viewers who have a High Definition Television that feature 3D capabilities will be able to view the 3D broadcast. Viewers will also need to live in a 3D transmittible area.

What type of equipment do you need to be compatible with 3D television?

To watch the 3D State of Origin broadcast, viewers will be required to purchase a High Definition Television (HDTV) that feature 3D capabilities.

Consumers electronic manufacturers provide active LCD shutter glasses for use with their 3D televisions, which is considered optimum for domestic use. These glasses synchronise with the TV typically via an infra-red signal from the TV. The glasses also have batteries, and must be "switched on" for proper use.

The lightweight polarised glasses typically used in cinemas will not work with most home domestic 3D TVs currently on sale.

Consumers will be encouraged to use wireless-enabled, active shutter glasses to watch 3DTV, which most TV manufacturers consider optimum for domestic use.

The circular polarised glasses currently used in cinemas are not suited to the home environment and active glasses offer a number of enhancements to the viewing experience, such as brighter colours, a wider viewing angle and sharper contrast.

The Nine trials will support both forms of display, and will allow viewers to experience the different options for themselves.

Need more help?

If you are experiencing interference or encountering technical problems resulting from the 3D Trial, please contact the Nine Network or WIN Engineering Manager at your local station

Sydney – (02) 9906-9999
 Melbourne – (03) 9429-0201
 Brisbane – (07) 3214-9999
 Newcastle (02) 4929-2933
 Wollongong (02) 4223-4199

How much does a 3D television cost?

The recommended retail price for a 3D television starts at \$2500

Do i need to watch everything in 3D on a 3D television?

All 3D TVs can run in 2D mode and still deliver an exceptional 2D picture quality.

Can i still watch state of origin if i don't have a 3D television?

Yes, Channel Nine will broadcast all three matches in 3D and 2D, to ensure everyone can enjoy the 2010 State of Origin series.

Channel Nine Standard Definition – Channel 9

Channel Nine High Definition – Channel 90

Channel Nine 3D High Definition – Channel 40

Will the 3D broadcast be available to everyone?

As a trial broadcast, Nine will use a temporary spectrum allocated by the Federal Government to broadcast the 3D matches in these areas:

	Broadcast Location	Area Served	RF Channel	RF Frequency	Digital Channel
Sydney	Gore Hill	Sydney metro	35	578.5 MHz	40
Brisbane	Mt Coot-Tha	Brisbane metro	50	683.5 MHz	40
Melbourne	Mt Dandenong	Melbourne metro	35	578.5 MHz	40
Newcastle	Cooks Hill Charlestown	Inner Newcastle suburbs	35	578.375 MHz	40
Wollongong	Knights Hill	Wollongong metro	50	683.5 MHz	40

Who is working with channel Nine to make this happen?

In addition to the support from Harvey Norman and the NRL, Nine's WWOS team will work alongside experienced 3D event companies to deliver the most compelling 3D viewing experience.