



Australian Radio Communications Industry Association  
Unit 9/21 Huntingdale Road, Burwood, Vic 3125  
Phone 03 9012 2615 – email [info@arcia.org.au](mailto:info@arcia.org.au)

Ian Miller - Executive Officer  
[itmiller@bigpond.com](mailto:itmiller@bigpond.com)  
Phone 0429 858 900

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The Manager,  
Spectrum Licensing Policy,  
Australian Communications & Media Authority  
PO Box 13112,  
Law Courts,  
Melbourne Vic 8010

**Reference: Five Year Spectrum Outlook (FYSO)**

The Australian Radio Communications Industry Association (ARCIA) represents the Land Mobile Radio (LMR) industry in Australia, often referred to as the two-way radio industry or in more modern parlance the 'wireless communications industry'. For around seventy years our members have been designing, installing, and maintaining private communications networks for users across virtually every industry sector of Australia, and we will continue to do this into the future as the demands for private networks spread out from the traditional Wireless Broadband (WBB) markets. The clients of our members are a critical part of the Australian economy and make significant contributions to both the gross domestic product (GDP) of the economy as well as employ thousands of Australians.

Given ARCIA members role in thousands of private wireless networks around Australia, ARCIA fully supports enterprise 5G networks to enable future innovation and productivity

As we read through the FYSO planning outlines we find it disappointing that yet again the ACMA are aiming the utilisation of Wireless Broadband (WBB) spectrum towards large network operators and paying scant attention to the immediate needs of Enterprise WBB markets. The second paragraph of the Foreword section mentioned that there has been extensive planning around bringing 5G services to market and the plans for bringing mid-band spectrum to availability for LTE and 5G services, yet the indications given by the ACMA during 2021 about conducting research in to 'private LTE needs' has neither happened nor even been mentioned within the FYSO. The emphasis remains on providing WBB spectrum through auctions in large lumps, basically working on the basis that the best public benefit from spectrum is the financial gain for Treasury, even though the Chair of the Australian Consumer and Competition Commission highlighted at a Radcomms conference that this should not be seen as the only means of public benefit.

If we pause to consider the implementation of WBB in general, and for use within industry across many vertical markets, the progressive development of the implementation and benefits gained follows a similar pattern –

- Mapping – in the initial stages the ability to map and track the assets and resources of an industry have provided significant benefits within many verticals, and this has been enhanced by access to the MNO WBB systems. As indicated previously it has primarily been as a result of Government subsidies that WBB access has extended into other areas but there is still 'salt and pepper coverage' in many areas, however, the location information available has met the initial requirements.

- Measuring – the second major benefit to industry verticals comes from being able to both measure and monitor processes in real time, this provides significant developments in improving processes and managing costs. In many industry verticals this can also be managed within the MNO WBB system configurations and unless there are ‘Business critical’ constraints or coverage issues then the benefits to industry will also flow on into the economy in general.
- Management – the next and most significant benefit to be gained from WBB is the ability to collect and analyse the data generated within any organisation, this is when the end user can evaluate the production processes and see where gains can be made without any additional expense being incurred, in other words the gains provide a direct and positive impact on productivity and profitability. At present the data generated from within an operation is lost into the MNO system servers, the actual user has little or no access to the data and therefore is not able to analyse the processes. By having an Enterprise system, the data remains within the control and ownership of the organisation that generated it and so can be used both now and, in the future, to provide working templates for productivity improvements. Several years ago, many industries were looking towards the benefits to be gained from ‘Big data’, however, with the MNO systems that seemed to be oriented towards the consumers and how marketing could be targeted to give greater returns. The actual benefit to be gained from so-called ‘Big data’ will really happen when industry can manage and analyse the data generated from within their own operations and similar verticals. The only economical way this can happen is if the users have ownership and control of their own data.

It is interesting to note that in discussions on the planning options, the FYSO makes comment that the ACMA is working with industry to develop options for LA WBB operations in the 3800-4000 MHz band, as well as in the future planning for the 1.5 and 1.9 GHz bands, as an industry that has been developing and installing private communication networks for many industry verticals for some seventy years we find it disconcerting that we have not been aware of these discussions? Given the outlines from Government about the need for Australia to improve our domestic manufacturing capability and to move ahead as part of the fourth industrial revolution, it is essential that spectrum be made available in the short term to facilitate the ‘early adopters’ of technology to lead the markets by installing Enterprise WBB systems now, not forced to wait until the future as indicated in the spectrum planning outlines.

One of the important issues that must be recognised with most enterprise applications is that the need for spectrum is not the driving decision behind the requirement. In virtually every case the first decision will be based on a business case to the end user showing the investment in the overall enterprise system and equipment will provide a suitable return on investment for the business, once this is done and the decision to proceed is taken, there will be recognition of the need for spectrum. The spectrum basically is seen as an adjunct to the equipment and is not seen as an investment on its own. This means that none of the potential users of enterprise systems either understand the spectrum auction process or would be interested in bidding for spectrum at any stage, they are usually not even aware of the criticality of spectrum availability for their business, they only see the need for business investment to improve operations, safety, and productivity/profitability.

Over the past twelve months the Minister for Communications has twice announced grant programs to encourage innovation in the use of 5G spectrum, with a total of around \$40 million available. The guidelines for the grants were designed to open new and innovative uses for 5G to foster the development of technology and productivity in new areas to add to our nations competitive opportunities. This is while the ACMA through existing methods are only encouraging one WBB format and, in many ways, restricting future options for other technological advancements.



Other countries have recognised the potential of Mid-Band spectrum to meet these needs. For example, in France regulators are looking at more industrial 5G spectrum, in the UK, Ofcom in a recent paper outlined the allocation 400MHz of spectrum to 'Local license systems', their terminology for private LTE/5G systems. Keep in mind that both of those countries have a much higher concentration of population so their public carriers services would have a much lower instance of 'Black spots'. In the USA the FCC setup the CBRS service with 150 MHz of spectrum backed by a new share spectrum model that allows both private and public users to benefit at scale.

The OnGo Alliance (a representative body of CBRS users and suppliers) has announced the impressive milestone of reaching 200,000+ CBRS devices installed nationwide in only a relatively short time since becoming commercially deployed. They now span many vertical markets including airports, K-12 school districts, WISPs, Mobile Operators, municipalities and now the trend is into manufacturing and similar applications. The availability of shared spectrum has fundamentally changed how enterprises approach connectivity, and this is again evidence of the ongoing reliance on the fourth generation of the industrial revolution on connectivity and spectrum.

With this background it becomes evident that the present format the ACMA follows for allocation by spectrum licenses does not suit the longer term investment requirements for enterprise systems. Planning and allocation methods need to be altered to ensure that sufficient mid-band spectrum remains available for later allocation to meet these constraints, it is important that this be done to ensure that the public benefit can be met through methods other than financial contributions to treasury and hence the gains in GDP and employment for the nation. We feel that the input from enterprise or private LTE markets has not been given sufficient voice in the past. It is essential to now recognise that the MNO WBB format is not best suited to many industry verticals and the requirements for enterprise systems are quite different, hence the prioritisation of the WA WBB allocations needs to be adjusted.

In relation to other matters, we will be submitting our industry response to the present consultation papers regarding the 3400 to 4000 MHz spectrum bands which will be along similar lines to our comments in this response. We also understand that two of our member organisations, GME and Analyse, Solve & Test are submitting responses relative to changes to the UHF CB spectrum, we support the content of both of those submissions and will be happy to support them if further information is required.

We thank the ACMA for the opportunity to respond to the FYSO planning outlines, with our long history of providing private network communications systems we have much to offer in these discussions and we feel that the input from enterprise or private LTE markets has not been given sufficient voice in the past. It is essential to now recognise that the MNO WBB format is not best suited to many industry verticals and the requirements for enterprise systems are quite different, hence the perception of the prioritisation of the WA WBB allocations needs to be adjusted. As always, our Association is willing to be involved and outline our contributions in discussion at any stage, our continuing position is that there should be transparency of all spectrum related decisions, plus the consideration of all applications for spectrum usage without revenue being the sole arbiter of public benefit.

Yours sincerely,  
Australian Radio Communications industry Association (ARCIA) Inc.

Ian Miller – Executive Officer