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Reference: Planning for WBB use in urban areas in the 3400-3475 MHz band – Options paper

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'. The clients of our members are a critical part of the Australian economy and are represented in virtually every industry sector in Australia, as well as multiple public interest areas. Our association is recognised by the Australian Communications & Media Authority (ACMA) as being the peak industry body that represents this segment of spectrum users and we are also representing our members and clients in the wireless broadband developments as it will often be our members who design, supply and maintain the many private LTE or Enterprise systems.

For some time now our members have been concerned that there is basically no mid-band spectrum available for these enterprise networks in the major urban areas of Australia, in our view a serious issue as it means that many industries in these areas have no choice of network options, they are forced to utilise the public carriers where their only choice is network supplier with no choice on the essential network features they may require. With this background we believe that the Urban Excise Areas (UEA) being returned by the NBN Co as no longer required in the major population centres opens up an ideal opportunity to address the issue of spectrum availability for enterprise systems.

We are concerned that the ACMA has suggested a preferred option that will again make valuable mid-band spectrum in the urban areas available in a format that is designed to suit the preferences of the public carriers and in so doing again close off viable opportunities for private LTE services in these areas. In reading through the details covered in the Executive Summary on how the ACMA reached the conclusion to recommend Option 4, we believe that some of the information outlined must be challenged, it would seem that the outline has been made to support a pre-determined outcome. If we look at the four desirable planning outcomes mentioned in the Executive Summary individually –

1. Provide adequate protection to incumbent NBN Co services in adjacent areas.

Although there is much mention of the desire to manage the level of interference between the proposed new band plan, the end result still relies on a theoretical solution and even then mentions that there is a risk potential for interference to occur. We suggest that unless the risk level is managed in a realistic way there will potentially be ongoing issues if the proposed macro-cell strategy is implemented. The real risk is that any interference to the adjacent NBN



Co services will be to the detriment of the end users of NBN Co, and as they will be at 'arm's length' from the NBN Co and public carriers, the interference detection and management will not be of a high priority for either the NBN Co or the operator of the macro-cell services in the spectrum under discussion. The most suitable way to manage the risk of interference is through the judicious allocation methods contained in the appropriate RALI guidelines as part of the allocation of apparatus licences.

2. Ensure NBN co is not unreasonably constrained in its ability to deploy new and more spectrally efficient technologies in the future

This should be complied with on the basis that any allocations in the urban excise spectrum segments under consideration are licensed within the guidelines of the 3GPP standards, we agree that the criteria is met with any/all of the outlined options.

3. Minimise the impact any new arrangements may have on existing 3.4 GHz spectrum licences above 3475 MHz

Again, by ensuring that any allocations in the relevant urban excise spectrum segments are operated within the 3GPP guidelines there should be no issue with any/all of the outlined options

4. Maximise the utility of spectrum in the urban excise areas for new wireless broadband services.

It is in this area that ARCIA finds that the ACMA have not given sufficient consideration to the options, the criteria is based on provision of 'new wireless broadband services' yet the option relates to providing a macro-cell format for a single operator. Historically the plan to provide services for macro-cell formats have meant that spectrum is allocated by an auction process and this is referred to in the options paper in reference to joint consideration with planning for the 3700-4000 MHz band. In that case the only bidders will be the public carriers keen to see the spectrum aggregated with their other spectrum holdings to increase the number of clients they can add to their existing services. This then means that there will not actually be ANY NEW SERVICES, only more capacity on existing services, whereas if option 3 were implemented there would be multiple new opportunities to service new markets and provide different opportunities for the public benefit against simply increasing capacity on existing services.

We submit that by choosing Option 3 the ACMA will be opening wireless broadband to more operators who will design their systems to meet the specific needs of the users industry, in preference to the 'one size fits all' of the public carriers formats. In addition, the restricted cell format with multiple operators being licensed within the urban excise areas will offer a higher degree of competition and the public benefits will accrue from increases in business efficiency and the relevant increases in GDP for the country rather than just the shareholders of the public carriers.

As an indication of some of the directions that new markets might follow is an article in Critical Comms e-magazine recently (Critical Comms newsletter@e.criticalcomms.com.au – 13th August 21) that outlines how a new commercial building under construction in New Zealand will have a Distributed Antenna System (DAS) installed as part of the infrastructure. The advantage of having access to the amount of data traffic and locations will be a commercial advantage to the building owners and it makes sense for the complete installation of an enterprise LTE/5G system in due course. If we consider locations like major shopping centres, for the building



owners/managers to be able to monitor traffic flows and locations of wireless broadband data, that will enable them to offer better features and services to their clients and the public. This can only be done as part of a private LTE/5G system.

In the section of the paper relating to 'Guiding legislation and policy' on page 6 there is mention of the Governments Digital Economy Strategy of 2021 and highlights that Australia will secure its future as a modern and leading digital economy and society by 2030. It further states that digital infrastructure is a key enabler for access to a digital world, and that the Government is supporting the implementation of 5G services through the timely availability of spectrum. The present decision to recommend Option 4 from this paper denies the markets outside of the public carriers the opportunity to help private industry invest in the benefits of having LTE/5G services operating under their own control and management. In effect this recommendation from the ACMA yet again defers the potential for private industry to get the benefits from technology and to give a public benefit in ways other than financial contribution to the Government through spectrum licence fees alone.

It is interesting to note that in the comments to the criteria outlined on page 3, the final dot point refers to '*In a given area, multiple operators could be supported . . .*' yet the ACMA preferred option is for macro-cell single operator allocations, a direct opposite to the intent of the note? We also note the comment on page 7 about improving market competition for the benefit of consumers, in this case we would point out that businesses are also consumers and deserve consideration ahead of the general public given that there is already significant amounts of spectrum available to the public carriers but precious little available for private LTE use.

We present our comments on the questions raised in the options paper –

1. Comment is sought on the draft amendments to the s.145(4) Determination contained at Appendix B, found as a separate attachment in the key documents section of this consultation.

Should additional measures be included to grandfather device registrations when minor modifications are made?

If so, what minor modifications should be permitted? For example, changes that results in the same or lower horizontal radiated power for the purposes of device boundary calculations. Alternatively, changes that result in the same or smaller device boundary as originally calculated when registering a device.

ARCIA does not wish to comment on this question, as we do not support the use of this spectrum for Macro-cell usage, we feel that the outlines as presented are acceptable given that they will become obsolescent with our preferred spectrum plan.

2. Comment is sought on the proposed changes to receiver spurious emission limits on 3.4 GHz spectrum licences.

ARCIA believes the proposition to bring the spurious emission limits in line with the 3GPP standards are a common-sense approach for all wireless broadband applications, however, will the NBN Co equipment also meet the same specifications in the longer term?



3. Comment is sought on the draft amendments to RALI MS44 contained in Appendix C, found as a separate attachment in the key documents section of this consultation.

ARCIA has no comment on this topic, we believe the proposition outlined is a good approach, but we have no added contribution.

4. Comment is sought on the options developed for use of spectrum in urban excise areas.

ARCIA has serious concerns with regard to the ACMA selection of Option 4 as the preferred option as we believe that not all relevant factors have been given sufficient consideration. Our opinion is based on the following factors –

- The potential for interference from Macro-cell systems has been outlined but then left for the licensees to manage, a situation that is not realistic when the actual outcomes are considered. It must be kept in mind that the interference will be suffered by the NBN Co users much more than the users of the wide-area broadband services. The NBN Co users will not be able to be catered for by moving to other cell sites or carrier spectrum, they will be locked in to the NBN Co service. When the end user of the NBN Co services realises that they are suffering interference and degradation of their service, they are required under the NBN Co system to report the problem to the retail provider of the service. It is highly probable that in the first instance the end user will be forced to go back and try to define the problem, and after further complaint it is going to fall on the service provider to handle the complaint. If we look at the typical retail service providers, organisations like AGL or Aussie Broadband are not going to have the facilities or knowledge to even recognise the interference problems, let alone have the technical knowledge to track it down. By the time the problem gets back to the NBN CO as the network operator it is most likely going to be a case of the end user having been very significantly disadvantaged by the poor service and quitting in disgust.
- **ARCIA proposes that the adoption of Option 3 with Restricted-cell operation will mean that the management of interference will be much better because firstly the localised problems caused by low-power services, and secondly because the actual equipment locations and service model will be defined under the terms of the apparatus licence allocation.**
- The development of the options paper has not provided real recognition of the demand for private or enterprise wireless broadband systems, the comment that spectrum will be available in the 26GHz band should not be used as a method for disregarding the needs for mid-band spectrum for these services. On the surface it is very easy to assume that because there are very few (if any) of these services in the major urban areas that this may be an indicator of demand. In fact, this is the very reason that there needs to be a re-consideration of the ACMA planning outcomes as until now there has effectively been no available spectrum for private LTE services in these urban areas. Even the supposed availability of 26GHz spectrum is a red herring since that spectrum has only recently become available and to date there is minimal equipment available in those bands, even the prices are at multiples of other equipment for mid-band services.
- **ARCIA proposes that the adoption of Option 3 with restricted-cell operation will create new markets for LTE/5G services, much along the lines of the Minister for Communications has recently outlined with the 5G Innovation Incentive options announced earlier this year.**



5. Comment is sought on the desirable planning outcomes for use of spectrum in urban excise areas

ARCIA believes the options as outlined cover the possible methods of utilising the available spectrum as part of the review of NBN Co licences, however, as outlined in our responses to Question 4 we believe that the ACMA has not given sufficient thought to the negative issues that macro-cell services will cause to existing NBN Co licensees in adjacent areas, nor to the benefits that would accrue from dedicating the spectrum for restricted-cell operations. There is already interest from the operators of maritime ports and aviation areas for having their own wireless broadband services, as well as new markets that will open as spectrum becomes available. We believe that the ACMA would in fact not be realising the best public use of the spectrum by simply taking the fees from an auction of spectrum licences rather than permitting the economy to be enhanced by the efficiency gains from private wireless broadband access for industry.

6. Views are sought on the possible interference management approaches for both co-channel mechanisms (including ducting) and adjacent channel mechanisms (including adjacent band coexistence) contained at [Appendix E](#).

As outlined above, ARCIA believes that the preferred option of the ACMA would create a significant risk of interference against the outlined restricted-cell models. When the format of use is examined as per 4 a) above, the potential for poor diagnosis of interference issues and the effect that may have on NBN Co users that could effectively denigrate the service they have been promised by their retail suppliers, then the interference mitigation for any of the macro-cell solutions presents unacceptable risks to the NBN Co grade of service. With a combination of NBN Co, possible retail providers and the ACMA all having limited resources and capacity to track down and manage interference, we believe that anything other than the restricted-cell solution is fraught with risks.

7. Comment is sought on the ACMA's preliminary preferred option. Are other options proposed, and if so, why?

ARCIA contends that the only acceptable utilisation of this spectrum should be as per Option 3, this addresses the interference management risks and assists industry to create and supply markets for private and enterprise wireless broadband solutions.

With the background to consultations such as this one almost always following the ACMA preferred option, we can only hope that if the information contained in our submission does not raise enough concerns for the ACMA frequency planners to re-visit and change their preferred option, then the following should be considered. That at the minimum there should be an embargo on any holder of spectrum licences in the adjacent mid-band spectrum from being able to hold licences under apparatus licensing in the 'Restricted cell' segments between 3460 MHz and 3475 MHz. With this restriction there might be some opportunities for low power enterprise systems. We also note that one of the research topics for the coming year relates to private LTE systems, this should have been investigated before so much WBB spectrum has been allocated to public carrier systems.

Yours sincerely

Australian Radio Communications Industry Association (ARCIA) Inc.

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