

30th September 2021

The Manager,
Wireless Broadband Section,
Australian Communications & Media Authority
PO Box 78,
Belconnen ACT 2616

**Reference: Planning for WBB use in urban areas in the 3400-3475
MHz band – Options Paper Consultation Submission - Consultation
No.: IFC 31/2021**

Dear Sir/Madam,

RF Industries Pty Ltd (RFI) are an Australian owned and based manufacturer, integrator and specialist services provider. RFI employs more than 250 people Australia wide in manufacturing, engineering, integration design, planning and support, sales, distribution and administration roles. The company is a major supplier of narrowband (Public Safety and Land Mobile Radio) equipment and services to the Australian industry at all levels and a key supplier to the Australian Carrier community particularly in extended coverage systems. RFI is also a major infrastructure provider to the Australian construction industry with a strong position in the vehicular and rail tunnel industry providing coverage extension for Narrowband radio, AM/FM/DAB rebroadcast services and mobile telephony (3/4/5G) services in the majority of major tunnel infrastructure installations Australia wide. RFI exports antennas and advanced RF infrastructure equipment to more than 50 countries around the world and is the largest supplier globally of advanced antenna systems in the public safety marketplace.

RFI are members of ARCIA and AMTA but have determined to submit an independent submission to this industry consultation as our business, and that of our customers, have a deep interest in expanding the market in a positive manner. RFI sees the global growth of private broadband networks as a key opportunity for the members of our industry to provide customers with viable, complimentary and globally relevant alternatives to carrier led offerings.

Without access to spectrum of this very nature the opportunity for large corporations to secure flexible, converged and highly adaptable broadband networks tailored to their specific applications will be

frustrated. The ability to build these networks, with the far reaching economic benefits and the flexibility to maintain a globally relevant private network in technology terms, is totally reliant on the access to a modest tranche of spectrum such as the segment currently in discussion.

In response to the specific issues for comment RFI offer the following feedback.

1. RFI does not see any issues with the amendments proposed however would ask that consideration be given to definitions for a “group of radiocommunications receivers” and a “group of radiocommunications transmitters” when it comes to potential low power or indoor applications. In such applications multiple transceivers might be located throughout a site within 20m of one another but not necessarily considered as mounted on the same structure as would be the case in a typical higher power tower type application. Similar consideration should also be given to clauses relating to Schedule 3 and antenna heights where deployments utilise multiple low power transceivers throughout buildings or campuses.
2. RFI agrees with the ACMA’s proposed core condition to align receiver spurious emission limits with 3rd Generation Partnership Project (3GPP) specifications. We also agree that such a decision will enable licensees to tap into the global equipment economies of scale benefits intended.
3. RFI supports the proposed RALI MS44 amendments. Based on demand for spectrum to provide wireless broadband services in the affected locations however, options should be considered in other suitable band segment plans as required.
4. RFI acknowledges the deployment scenario and licensing considerations of the ACMA in formulating the 4 options documented. We see that Options 1-3 consider 3 different use cases well while Option 4 attempts to cater for multiple use cases but in doing so it also limits use case capability. Reducing

macrocell usage to 60MHz is less usable from a major carrier perspective and is really at the minimum channel bandwidth requirement for one operator alone. Allocating 15MHz only for restricted cell use doesn't make it usable for private network usage particularly when 5MHz is also restricted band use spectrum. Under a multiple operator shared use scenario this limited amount of spectrum won't support the widespread deployment of private networks given inter network interference considerations. While we understand the reasoning behind Option 4 to potentially use the upper 15MHz more effectively, minimise possible interference to NBN services and allow macro based networks in the lower 60MHz to run optimal synchronisation it is not an option we support. We see it as just an alternative Option 1 allowing a means by which a spectrum auction selloff of the best of the spectrum to the major carriers can occur, while offering a token amount of limited use spectrum to the private network market that doesn't seriously support widespread deployments in any meaningful way.

5. RFI considers the interference management criteria presented as reasonable approaches for the various options. However, the complications under Options 1 & 4 are use case driven and clearly present an increased risk to NBN operations. At the same time the mitigation measures compromise the spectral efficiency of the band and promote Options 2 & 3 as better alternatives in this respect.
6. In consideration of the ACMA's desired planning outcomes, RFI again regards options 2 & 3 are the preferred options with Option 3 being the most preferred. This is supported by the ACMA's own TLG findings with respect to interference concerns. Options 1 & 4, being major carrier targeted macro inclusive options, present a much higher risk of interference to incumbent NBN services and are far more limiting to potential NBN future services. The very suggestion of limiting synchronisation under Option 1 makes the use of the spectrum less efficient than it can be and likewise under

Option 4, the upper 15Mhz is highly compromised in its potential to be utilised efficiently. RFI would also question the value of the bandwidth of spectrum available to major carriers. In our experience major carriers in this band require contiguous spectrum and run 60MHz channels as a minimum (100MHz desired) so there is not the support for multiple operators as intended over a 3400-3475MHz frequency range. Further we see a risk that the spectrum, if again secured by the major Carriers, may be under-utilised, or segments not utilised at all, as a result. Alternatively Options 2 & 3 being low power and not wide area based network options, provide far better protection to NBN incumbent and future services. This will be aided further with an apparatus (or similar) based licensing system as the ACMA has indicated would be it's preferred licensing platform. Of these options RFI are of the view that Option 3 would promote a more widespread uptake of the spectrum for private network use and ultimately make better use of the spectrum. It is well published that some 80% of mobile traffic is generated indoors where often coverage from traditional public mobile networks is poor. Where deployed indoor private networks can support this traffic providing not only a better user experience but also a highly efficient use of spectrum in terms of throughput/Hz delivering on a key desirable outcome.

7. RFI disagrees with ACMA's preferred Option 4 position. We believe Option 3 provides a better public interest outcome by acting as an enabler for business and enterprise to deploy private 4G and 5G networks. There is a high demand for Industry 4.0 capable networks that are reliable, secure and low latency which Wi-Fi just can't deliver. The major carriers can't be relied upon to provide these networks as sub networks of their wider public networks. They have a different business model focus and have a track record of not providing the network maintenance and support needed to fulfil enterprise requirements. Enterprises themselves though have the need and the means to build these networks for

themselves. What's stopping them is a lack of spectrum. You need only look at the success of CBRS in the US and similar private network spectrum allocations in Germany, Japan, China, South Korea and other countries to appreciate the private network demand and delivery model.

We trust that the ACMA finds value in the feedback RFI has provided. As always, we are more than happy to be involved in further consultation as required.

Regards

A handwritten signature in black ink, appearing to read 'Mick Cleary', with a stylized flourish at the end.

Mick Cleary
CTO - DAS Group
0414 744 804