



ARA Submission

Replanning of the 1880-1920
MHz band

Reply to comment period: feedback on submissions

21 April 2023

ABN 64 217 302 489

The rail industry

The Australasian Railway Association (ARA) is a not-for-profit member-based association that represents rail throughout Australia and New Zealand. Our members include rail operators, track owners and managers, manufacturers, construction companies and other firms contributing to the rail sector. We contribute to the development of industry and government policies in an effort to ensure Australia's passenger and freight transport systems are well represented and will continue to provide improved services for Australia's growing population.

This submission has been developed in consultation with ARA member organisations.

Any questions regarding this submission should be directed to Simon Bourke, General Manager – Policy and Government Relations via sbourke@ara.net.au.

Australia's rail industry

Rail is a significant industry in Australia, creating economic activity through its operations and capital investments. It is an industry with activities across every major metropolitan and regional area and is supported by the full spectrum of skills in the Australian workforce.

In 2019, the rail industry contributed around \$30 billion to the Australian economy and employed more than 165,000 workers (directly and indirectly in full-time equivalent terms, FTE). The industry is made up of around 900 businesses that are located in approximately 20 major hubs.

Feedback on submissions

The following information is provided by the ARA in reply to other submissions made to the Options Paper.

General Comments

The ARA would like to point out that if granted, the principal use of FRMCS/RMR operating in 1900 - 1910 MHz TDD spectrum would be for rail safety systems and systems critical to the operation of the railway. As such this spectrum would require some degree of protection from interference within and around the rail corridor.

The ARA notes the general support from other submissions for Option 4, however, we emphasise that the EU has dedicated 1900 - 1910 MHz for RMR/FRMCS and Australian rail operators have a responsibility under Rail Safety National Law to ensure, so far as is reasonably practicable, elimination of risks to safety and to ensure that any necessary conditions are maintained. ARA members consider that sharing spectrum with SR WBB class licensed devices establishes an interference condition that could not be maintained.

Under Rail Safety National Law, rail infrastructure includes communication systems and rail safety work includes signalling and telecommunication systems.

The ARA has an additional concern that, under Rail Safety National Law, a person operating a SR WBB device may inadvertently stop trains or interfere with rail infrastructure such as telecommunication and signalling systems. By proceeding with Option 3, SR WBB would not be permitted to operate in metropolitan areas with RMR in 1900 - 1910 MHz which will reduce this risk as low as reasonably practical.

The ARA notes that most submissions are in favour of sunseting current 1900 – 1910 MHz band plan which would have effect to remove primary status from any RMR service. ARA members agree that should the 1900 – 1920 MHz band plan be allowed to sunset and RMR is permitted in the 1900 – 1910 MHz, a new band plan would be required to ensure RMR in the 1900 – 1910 MHz is considered a primary service.

Coexistence issues with adjacent band 2 GHz and 1.8 GHz networks

The ARA notes that AMTA, OPTUS, TELSTRA and AQURA Technologies have raised concerns with coexistence of RMR in 1900 - 1910 MHz to adjacent band services.

The ARA would like to point out that RMR in 1900 - 1910 MHz would provide a 10 MHz guard band to services in the 2 GHz band and over 20 MHz guard band to services operating in the 1.8 GHz band.

Secondary allocation and uncoordinated second-in-time installations of adjacent band systems near the rail corridor would impact the utility of this band for RMR.

If the allocation of 1900 - 1910 MHz for RMR were to be successful, further work would need to be carried out to work out and understand the impacts of any measures proposed to mitigate interference related to coexistence with adjacent band services.

Response to AMTA's Submission

AMTA notes,

“that the introduction of class-licensed short-range wireless broadband (SR WBB) in 1900-1920 MHz presents perhaps the biggest challenge associated with Option 4, since class-licensed services cannot typically share reliably with outdoor fixed links or outdoor WBB. Users of class-licensed services may not have the tools or knowhow—nor the obligation or incentive, as is the case with apparatus licensees—to effectively coordinate with, and thereby avoid causing interference to, existing apparatus-licensed services. As such, our support for Option 4 is contingent on the development of an appropriate interference management framework to ensure that existing apparatus-licensed services are protected. If this cannot be achieved, we believe falling back to Option 3 is most appropriate.”

The ARA reiterates AMTA's concern that effective coordination with class-licensed SR WBB devices is challenging and that Option 3 is more appropriate.

Response to Nokia's Submission

Nokia supports Option 3 and Option 4 noting that,

"There are potential Interference concerns, especially in Metro areas closer to Rail corridors. This highlights the need for carefully coordination between LA WBB, PTP and other services and proposed RMR services. In such a scenario, Nokia would assume DECT and Multefire would be limited to indoor use, especially in close proximity to Rail corridor.

In addition, for any SR WBB services that are allocated to 1880-1920 MHz, there needs to be careful coordination to minimise interference concerns and proposed RMR Services, especially given that RMR services operating in 1900-1910 MHz band are TDD based and susceptible to interference.

Note: Rail is a Mission Critical service and as highlighted in Section 2, 5G/FRMCS will bring a lot of automation and safety and mission critical services. As such, it is imperative that the Rail corridor is well protected from any interference from the shared use scenario as proposed by this option."

The ARA reinforces Nokia's concerns regarding interference if 1900 - 1910 MHz is shared with SR WBB. The ARA has mentioned that it would be an onerous challenge – if not impossible – to coordinate with class licensed users of SR WBB devices.

Response to Optus' Submission

Optus stated that,

"Any licencing regime to apply in this band should be appropriate for its intended use and provide the required levels of protection, coordination and rights to enable efficient utilisation of spectrum."

The ARA agrees.

Optus also stated it,

"... welcomes the opening of the 1.9 GHz band for RMR uses between 1900-1910 MHz frequency range, while allowing for parts of the band to continue to be used for the range of current services."

The ARA appreciates Optus' welcoming of RMR into 1900 - 1910 MHz and supports their view that,

"any changes should ensure coexistence with adjacent band services. Specifically, where it applies to spectrum licensed services in both the 1800 MHz and 2100 MHz bands."

Optus stated that,

“In general, Optus supports the ACMA adopting Option 4 as its initial starting point for developing any changes to arrangements in the band.”

The ARA highlights that Optus considers Option 4 to be a starting point. Taking this perspective, Option 3 should be considered a viable option should coordination issues related to SR WBB be unable to be satisfactorily resolved.

Response to Symb-iot-ech’s Submission

Symb-iot-ech commented that,

“Shared spectrum operation enables the most flexible use of spectrum and is a future proof solution. However, this spectrum ruling would require that all technologies are capable to automatically comply and mitigate their interference to the adjacent users in this band. This would allow business to develop and deploy local networks for their needs when needed in locations where they need them.”

Symb-iot-ech raised an interesting point: that sharing spectrum requires “all technologies are capable to automatically comply and mitigate their interference to the adjacent users in this band” – i.e., that normally for class licensed devices, a clear channel assessment is utilised to share spectrum access by ensuring transmission only occurs when carrier or energy levels are below a technology threshold.

The ARA has a view that sharing spectrum between RMR and SR WBB may be difficult in locations near a RMR BS.

Response to ARCIA’s Submission

ARCIA noted that,

“... 3GPPP technology developed for trains, have not been economically viable in the longer term”.

Whilst 3GPP-based railway radiocommunication and signalling systems are not inexpensive, they have, nonetheless, been instrumental in establishing an integrated European rail network supported for nearly 20 years by a number of manufacturers. In Europe alone, 3GPP-based railway radiocommunications systems have been implemented for over 100,000 km of track¹.

As ARCIA suggested, next generation railway radiocommunications and signalling systems will be based on 5G and the EU has reserved 1900 MHz spectrum for this exact purpose. In recognition of growing bandwidth needs, the EU is maintaining existing 2 x 5.6 MHz spectrum in 900 MHz band as well as reserving 10 MHz of 1900 MHz band spectrum.

¹ [FRMCS | UIC - International union of railways](#)