

Australasian Railway Association

ACMA Submission

Views on 6 GHz band spectrum
sharing for Automatic Frequency
Coordination

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**Australasian
Railway
Association**



The ARA

The Australasian Railway Association (ARA) is the peak body for the rail sector in Australia and New Zealand, and advocates for more than 220 member organisations across the industry.

Our membership covers every aspect of the rail industry, including the:

- passenger and freight operators that keep essential rail services moving;
- track owners, managers, and contractors that deliver a safe and efficient rail infrastructure network; and
- suppliers, manufacturers, and consultants that drive innovation, productivity, and efficiency in the rail industry.

Our members are driven to support vibrant, sustainable and connected communities through greater use of rail across Australia and New Zealand. We bring together industry and government to help achieve this ambition.

Our advocacy is informed by an extensive research program to ensure we offer solutions that are grounded in evidence and focused on delivering tangible value in our daily lives.

The rail industry has a crucial role to play in the region's sustainable development and growth and offers meaningful and rewarding careers for tens of thousands of people in the regions.

Our significant program of work is focused on supporting a strong advocacy agenda, and creating opportunities for the rail industry to network, collaborate and share information, and maximise the benefits we have to offer the wider community.

The ARA thanks the Australian Communications and Media Authority for the opportunity to make this submission, which has been developed in consultation with ARA member organisations.

Any questions regarding this submission should be directed to Joanne Wilson-Ridley, Policy Manager via jwilsonridley@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 2024, the rail industry contributed around \$38.8 billion to the Australian economy and employed more than 196,000 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.

Railway response

The ARA welcomes the invitation to comment on Automatic Frequency Coordination assisting spectrum sharing in the 6GHz band.

Australian railways are an incumbent user of the 6GHz band, predominantly for point-to-point microwave links in remote and regional areas. These point-to-point links provide vital communication services that support critical rail infrastructure systems such as train control voice, including emergency call capability, signalling systems and monitoring of rail infrastructure integrity. These systems are vital to ensuring the safe and efficient operation of rail services.

In addition, these point-to-point links provide backup communications of rail systems during natural disasters such as cyclones and flooding which impact coastal rail communications systems. These backup services are vital in recovery efforts to get goods and services to locations impacted by disasters.

The 6GHz band is one of only a small number of bands that support high-capacity long haul microwave systems. Over time it has been observed microwave radio bands have been fully or partly reassigned for other purposes, resulting in a reduction in point-to-point spectrum availability leading to congestion in some geographic areas.

The 6GHz band provides an ideal mix of path length and capacity. Moving to higher frequency bands would require the establishment of additional sites, significantly increasing costs and complexity.

While there is reference to incumbent point-to-point users of the 6GHz band within this paper, there must also be consideration for future services and network expansion as the rail industry transforms and becomes more reliant on digital technologies such as AI, IoT and digital signalling systems. (Refer to [NTC Digital Rail Technology](#))

The ARA provides comment on the following issues raised in the discussion paper:

1. Do you support the adoption of an AFC framework in Australia to enable outdoor standard-power operation in the 6 GHz band? What are the key benefits and concerns? In particular, who would the main beneficiaries be, and what would be the implications for consumers in the telecommunications market?

The ARA cautiously support the adoption of AFC provided there is no impact to incumbent and future point-to-point services in the 6GHz band.

If testing of AFC can prove that this can allow both licenced spectrum users and outdoor AFC users to co-exist then this is a good use of spectrum. However, if this is not achievable then the spectrum should remain reserved for licenced users, as this is a critical resource for utility, transport operators and carriers alike in low density areas where long link and fibre connectivity is not practical.

2. How might AFC change the way WISPs and other communications service providers operate, particularly in terms of supporting greater spectrum efficiency or service innovation?

The ARA have no comment.

3. Are there any alternatives to AFC that could support dynamic and efficient frequency assignments in the 6 GHz band?

The ARA have no comment other than the alternatives to AFC do not impact incumbent and future point-to-point services within the 6GHz band.

4. Would established models in other jurisdictions such as the US and Canada, or aspects of these models, be appropriate for the Australian radiocommunications environment?

It is difficult to say without greater knowledge of the spectrum arrangements in these jurisdictions and how they compare to the arrangements here in Australia, especially in relation to the allocation and availability of spectrum for point-to-point services.

The ARA would support a more structured compliance-based model as implemented in Canada, where there is stricter protection criteria and defined coordination procedures to protect existing and future point-to-point services within the 6GHz band.

The tiered model, whilst untested in Australia, would appear to offer the best provision of service to licensed users.

5. How much spectrum should be made available under AFC, and what bandwidths should be allocated to support individual AFC service offerings? Should part or all of the 6 GHz spectrum available for RLAN use be made available for AFC-enabled access by standard power devices, or is there a case for arrangements supporting a range of power levels above VLP/LPI and below/including standard power?

A segment of spectrum should be reserved for sole use by critical services such as rail, transport, utility and government operations. It must be ensured the allocation and bandwidths of spectrum for AFC do not impact incumbent and future point-to-point services within the 6GHz band.

6. What degrees of geographic and spectrum segmentation should be considered when planning for individual AFC system deployments? For example, would planning for localised, self-contained areas or multiple sub-bands foster competition in the market for the provision of AFC services, or would that come at too much of a cost to spectrum efficiency (through the need for guard bands/spaces)?

Low density areas where access to optical fibre transport mediums is limited and not practical to build, should not be available for AFC spectrum use. It must be ensured the geographic and spectrum segmentation for AFC do not impact incumbent and future point-to-point services within the 6GHz band.

7. What are the respective roles and responsibilities for industry and government in realising an AFC regime? Should AFC be operated by industry under government-set rules or should government play a more direct role in providing AFC services?

ACMA should provide ownership of required systems that facilitate AFC use. (e.g. database services etc). As this would better support a tiered system of spectrum use. The ARA would strongly support government playing a direct part in providing AFC services to ensure there are no impacts to incumbent and future point-to-point services within the 6GHz band.

8. What role should databases such as the ACMA's RRL or other coordination mechanisms, such as those administered by the ACMA but used by accredited assigners, play in the process?

The ARA suggest that ACMA's RRL database be utilised for coordination of AFC systems.

Any other mechanism would need to be strictly controlled and carefully managed to ensure it is accurate and up to date.

9. What is the need for, and potential structure of, a tiered access model for incorporating standard power RLAN devices in the 6 GHz band?

A tiered system is critical if standard power RLAN is to be operated in the 6Ghz band. Licenced users must be considered the highest priority.

The ARA would support a tiered access model as proposed in the paper.

However, noting that while this model would provide protection for incumbent point-to-point services, it may impact expansion of point-to-point services once AFC services have been established and given the congestion in the band or other suitable bands in some geographic locations.

10. With respect to licensing, should individual AFC-coordinated devices be registered on the RRL or covered by broader system-wide licensing arrangements, or are there other authorisation models that we should consider?

A co-ordinated approach is recommended for the sale and ownership of AFC-coordinated devices. It should be noted that whilst frequency used will not be licenced, the ownership of the AFC apparatus should be licensed.

The ARA's preference is for registration on the RRL.

11. What processes and safeguards would need to be established to accredit, audit and ensure ongoing compliance of industry-led AFC operators? What type of rules should be imposed on prospective AFC operators and how should those rules be codified?

Registered users should only be able to connect to database to enable operation.

The processes, safeguards and rules must be able to efficiently resolve impacts to incumbent users in the event of interference to point-to-point services.

12. What technical or administrative features (e.g., real-time geolocation, exclusion zones, device registration, database accuracy and latency) will be critical to the successful implementation of AFC?

All features listed above should be mandatory and include a reliable secure authentication mechanism.

The ARA would support their implementation to ensure there is no impact to incumbent and future point-to-point services within the 6GHz band.

13. How should data integrity, ownership, and update mechanisms be managed in AFC systems? Are ACMA's existing systems (such as the RRL) sufficient, or would changes or new systems be required to support real-time coordination?

The ARA do not presently have a view on the data integrity, ownership and update mechanisms or whether existing systems are sufficient, provided their implementation ensures there is no impact to incumbent and future point-to-point services within the 6GHz band.

14. What is the expected market for the provision of AFC services in Australia?

The ARA have no comment.

15. What standards or other mandatory specifications should be prescribed to ensure AFC enabled devices comply with operational rules (for example, GPS accuracy, firmware requirements, revalidation intervals)? What are the implications for manufacturers and operators?

All specifications mentioned above plus mandatory system authentication.

It must be ensured these standards or specifications provide sufficient protection for future point-to-point services within the 6GHz band.