



Cisco Systems, Inc. Comments

February 2026

Response to ACMA Consultation on Automatic Frequency Coordination assisted spectrum sharing in the 6 GHz band

Introduction

Cisco Systems, Inc. hereby files comments in response to the Australian Communications and Media Authority (ACMA) “Automatic Frequency Coordination-assisted spectrum sharing in the 6 GHz band Discussion paper” issued in November 2025. Cisco appreciates ACMA in having opened up the much-needed spectrum in the lower 6 GHz range for low power indoor (LPI) and very low power (VLP) devices, and in extending a further 160 MHz from 6425–6585 MHz for such use. We look forward to ACMA taking the next step to introduce Automated Frequency Coordination (AFC) and allow Standard Power (SP) devices to be used in the 6 GHz band.

Cisco is a global provider of Internet Protocol (IP)-based networking solutions with a strong presence in Australia. Among Cisco’s many products are Wi-Fi network solutions for enterprise, enterprise networking solutions generally, and telecommunications service provider networking solutions. While we support our telecommunications service providers’ goals for more spectrum in other bands, we believe that the upper 6 GHz band is better suited for Wi-Fi operations. Australia urgently needs more Wi-Fi spectrum to enable the technology to keep pace with improvements in complementary technologies such as 5G, and to ensure that Wi-Fi does not become a bottleneck in Australia’s digital infrastructure.

Responses to ACMA consultations typically come from the providers (Mobile Service Providers and Satellite Providers) and vendors (infrastructure, client and chipset manufacturers). Rarely are responses provided by the end users who deploy the infrastructure impacted by these regulations—the “empty chair” in the room.

Cisco works with a large number of Australian companies and organisations across every vertical industry. In developing this response, we engaged directly with customers across a range of industries in order to share their perspectives.

Issues for Comment

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?

In many Wi-Fi deployments, the wireless network will span across both indoor and outdoor environments. Currently, the lack of 6 GHz coverage outdoors can impact seamless roaming between the environments, which will adversely affect real-time applications. This is an issue for a range of environments from schools and TAFEs and Universities, to warehouses and logistics, to entertainment and sporting precincts. Outdoor SP operation will allow client devices on 6 GHz indoor to seamlessly roam to outdoor spaces, minimising the impact on applications.

While not explicitly called out the LIPD specification, the LPI rules globally limited the ability to support 6 GHz on access points (APs) with removable external antennas. SP support in Australia would open the door for using external antennas in the 6 GHz band, which is particularly important for outdoor Wi-Fi coverage and to support specific topologies such as point-to-point and point-to-multipoint for long distance or mesh backhaul use cases (e.g., in resources verticals such as mining and oil and gas, or transportation such airports, rail and ports). But even in the indoor space, external antennas are necessary for wireless coverage in complex RF environments (e.g., large open spaces, industrial environments, and heritage listed sites).

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?

There are numerous ways in which AFC will support WISPs and other providers, by opening additional spectrum for increased capacity amid growing traffic demand and allowing higher transmit power to enable greater range. As seen in the US and Canada, the availability of AFC has helped to support these requirements.

Specific to Australia, as all local mobile carriers support Wi-Fi Calling, an AFC service will help improve the ability to leverage this capability to improve connectivity and reduce congestion. In many large buildings, distributed antenna systems (DAS) are currently used to support in-building coverage, although DAS is costly, complex and usually results in poor quality coverage. With AFC providing access to more spectrum, this would allow WISPs and carriers to take advantage of Wi-Fi offload, reduce reliance on licensed mobile spectrum, lower costs, and provide improved service.

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

AFC is now a proven solution which has been successfully deployed in other jurisdictions like the US and Canada. Given current progress, we do not believe that exploring alternative approaches is advisable at this time.

Further, building on existing solutions will allow products to leverage economies of scale, improve the likelihood of localisation, and ensure broad availability and support for Australia's AFC implementation.

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?

Yes, building on the established models developed for the US and Canada will not only leverage the existing proven solutions, but will also help accelerate the work required for Australia, allowing the system to be made available much sooner.

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?

Cisco continues to be of the opinion that ACMA should make the full 1200 MHz of 6 GHz available for RLAN use and has, in the past, shared numerous real-world examples in enterprise and industrial (or non-household) scenarios. At the end of this document, we provide additional examples as further illustrations of the importance of providing more spectrum to meet the demands of the enterprise and industrial sectors.

In ACMA's "Future use of the upper 6 GHz band Outcomes paper"¹, it was acknowledged "that the high-density, non-household scenarios described would need additional spectrum to accommodate more RLAN channels to support the data requirements of a high number of end users within a confined area", but it was further argued that "[w]hile we do expect that these high-density scenarios will occur, they would be significantly less prolific than the household use of RLANs. It seems likely that in the medium-term, additional spectrum allocated to RLANs to support the highest demand use-cases would be under-utilised outside these isolated scenarios." Based on this point, ACMA concluded that "it is difficult to justify the full 1200 MHz (the sum of both the lower and upper 6 GHz bands) for all but the most marginal usage scenarios", ultimately deciding to make 6585–7100 MHz for WA WBB use.

The argument against the need for additional spectrum in the household scenario focuses on wider channels for increased throughput, as compared to the average NBN connection speeds into the home. However, in apartment buildings, the need for more spectrum is less about wider channels, and more about minimising co-channel interference between the many competing wireless networks in close vicinity with each other. The outcomes paper noted that "Wi-Fi is currently used in high-interference environments quite successfully without a need for the kind of low-interference environment that would be provided through the use of more spectrum." While Wi-Fi can operate in high-interference environments, the presence of interference has a direct impact on both bandwidth and latency experienced, the latter being critical for real-time applications. The average monthly usage in NBN is growing to over 500 GB per premise², and this trend is expected to continue and impose even higher performance demands. The Australian Government and NBN Co are investing to ensure that by 2030, "more than 94% of premises on the fixed line network ... will have access to connections enabling speeds of up to 1 Gbps."³ Apartments represented 30% of the increase in

¹ <https://www.acma.gov.au/consultations/2024-05/planning-options-upper-6-ghz-band>

² <https://www.nbnco.com.au/corporate-information/media-centre/media-statements/nbn-co-meets-guidance-targets-nation-wide-network-upgrades-on-track>

³ <https://www.infrastructure.gov.au/department/media/news/final-nbn-upgrades-works>

private dwellings between the 2016 and 2021 Census updates⁴, and as such, merit consideration for their unique requirements.

Ofcom recently published their statement and further consultation paper “Expanding access to the 6 GHz band for commercial mobile and Wi-Fi services”⁵ initially noting that “the Wi-Fi sector wants to use existing equipment now, while the mobile industry is focussed on the need for additional capacity and 6G uses from 2030.”

Ofcom further recognised “that future predictions of demand for both Wi-Fi and mobile remain somewhat uncertain at this stage. Allowing use of the band now for Wi-Fi, whilst ensuring that both Wi-Fi and mobile can have the access they need in the future should lead to a better outcome for people and businesses. It will support innovation and growth for both and will allow us to respond to evolving demand over time.”

We believe that deploying AFC in Australia would allow for this flexibility. Allowing APs under the control of an AFC service to utilise the full 1200 MHz for Wi-Fi (RLAN) would maximise the utilisation of the band in the near term, while protecting the incumbents in the band. Further, by updating the AFC database, access to the 6585-7100 MHz can be relinquished for WA WBB when and where required.

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)?

Geographic and spectrum segmentation should be minimised to avoid unnecessary complexity and reduced spectrum efficiency. A single, nationally consistent AFC service for Australia—operated by one or more accredited providers—would support reliable coordination and consistent outcomes for wireless users, while maximising spectral efficiencies.

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?

As with the existing US and Canada deployments, we believe that AFC services should be operated by industry in a competitive environment under a government defined regulatory framework, and leveraging the Register of Radiocommunications Licenses (RRL) as the “single source of truth.” Industry is best placed to deliver and maintain the AFC infrastructure and services, while the government is best placed to set rules, compliance requirements and oversight that facilitate a choice of providers.

⁴ <https://www.abs.gov.au/media-centre/media-releases/2021-census-count-includes-australians-living-wheels-and-water-most-us-still-firmly-land>

⁵ <https://www.ofcom.org.uk/spectrum/innovative-use-of-spectrum/consultation-expanding-access-to-the-6-ghz-band-for-commercial-mobile-and-wi-fi-services>

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?

As noted in the previous question, ACMA's RRL should play a key role to ensure accurate information that will protect incumbent services, representing the "single source of truth." The service already exists and is publicly accessible. ACMA should ensure that the RRL meets key requirements around scalability and reliability, with appropriate provisions for redundancy and security. With a 24-hour periodicity, AFC providers would not require excessive or constant access, which should minimise any potential impact to the existing RRL services.

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?

The discussion paper suggests 3 tiers:

- Tier 1: Incumbent non-AFC apparatus licensed users
- Tier 2: Standard-power users coordinated through AFC (AFC subscribers)
- Tier 3: LPI and VLP devices operating under the LIPD class licence conditions

We do not necessarily see value in separating SP in one tier, and LPI and VLP in another tier.

That said, it might be worth differentiating within the specific Wi-Fi context where client devices operate under the control of an AP. In this scenario, we suggest that client devices be permitted under the LIPD class licence to support the full 1200 MHz of the 6 GHz band, since the AFC, with information on where incumbents are present, can avoid using parts of the bands that may cause interference. Ofcom recently made this decision⁶ noting "[t]his decision should allow client devices to be made available for possible future use of the band, thereby helping faster adoption. Use in the band, in practice, will only become possible once we have made a decision on the proposals below to enable Access Points in Upper 6 GHz."

As an example of why this is important, in Indonesia, different parts of the 5 GHz band were made available for Wi-Fi use over time in multiple stages. We have found that older client devices lack the support for all the channels now permitted, and no upgrades were made available for such older client devices to add the support for new channels. This results in the client devices being unable to connect to APs in the network that are utilising the full range of channels, thus experiencing poor performance even though the network infrastructure has been upgraded.

Even here in Australia, it is taking time for devices to gain support for the additional 160 MHz made available in the recent LIPD update.

Because Wi-Fi client devices can only use the channels operated by the APs, and the APs will only operate on legal channels, this removes any risk of the client devices impacting incumbents, while also ensuring that client devices will support both current and future spectrum bands that are permitted for use.

⁶ ["Expanding access to the 6 GHz band for commercial mobile and Wi-Fi services"](#), Ofcom

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?

Ideally, AFC coordinated devices would operate under the existing LIPD framework. Today the LIPD defines permitted operating frequency bands and maximum EIRP for specific class of radiocommunications transmitters.

We envision a new class, AFC coordinated devices, which would obtain the permitted operating frequency bands and maximum EIRP from ACMA approved and accredited AFC services.

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?

ACMA should consider the needs of both the users of the service as well as operators. From the user perspective, particularly in the enterprise and industrial space, there will be concerns around cybersecurity, privacy, data sovereignty and reliability.

At the same time, it will be important to minimise the regulatory burdens placed on the AFC operators to ensure that the service is financially feasible.

From a cybersecurity perspective, most enterprises will operate with a proxy service between the wireless network and the AFC service. Further, services should be designed such that the network initiates the connection to the AFC to simplify the security implementation.

There should not be a requirement for any internal network information to be transmitted to the AFC operator, such as MAC or IP addresses. GPS coordinates and contact information should be sufficient to address interference related issues, and reduce concerns around privacy of users, or the need to send sensitive data beyond borders in situations where an AFC operator may serve multiple jurisdictions from a single location to optimise operational costs. Reliability will also be a concern for enterprise customers, with failover options needed to ensure that service can be maintained across a range of failure scenarios. Standard industry best practices should be applied by operators to ensure that reliability and security concerns are adequately addressed.

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?

ACMA should aim to specify the minimum required capabilities to ensure protection of incumbent services. For example, real-time geolocation is not required for typical fixed wireless APs. Location can be calculated as the network comes online and used for subsequent interactions with the AFC service. Should APs be moved, they would be disconnected, losing power. When the AP is brought back online, location would be determined once again. This aligns with the fixed nature for most of the incumbent services.

Location can be calculated in various ways. ACMA should not necessarily specify a particular solution, but rather, the focus should be on the uncertainty factor, requiring at least 95% confidence for the location reported to the AFC service. This aligns with both the service requirements implemented by both the FCC and ISSED.

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?

As noted in the response to question 8, ACMA's RRL can provide an excellent foundation for AFC services. An analysis should be performed to ensure that the RRL meet key requirements around scalability and reliability, with appropriate provisions for redundancy and security.

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

As illustrated in the Enterprise and Industrial Use Cases section below, there are many examples of the need for SP in Australia, which demonstrates a clear market requirement for AFC services in Australia to enable it.

Looking at the AFC operators in the US and Canada, we see a range of companies, spanning chipset vendors, device manufacturers, and industry consortiums with a vested interest in expanding Wi-Fi services. We expect many of these companies to have a similar interest in the Australian market.

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?

As previously mentioned, harmonisation with the solutions and standards used for pre-existing AFC deployments is recommended, both to benefit from existing proven systems, and to simplify the adoption for the Australian market (e.g., the technical specification defined by the Wireless Innovation Forum for AFC operation, WINNF-TS-1014⁷).

⁷ ["Functional Requirements for the U.S. 6 GHz Band under the Control of an AFC System"](#), Wireless Innovation Forum.

Enterprise and Industrial Use Cases

In this section, we provide examples from different Enterprise and Industrial Use Cases. This is not meant to be an exhaustive review of all the use cases arguing for additional spectrum, but rather to illustrate that new requirements are constantly emerging, and that we expect to see this continue. Therefore, we would urge ACMA to consider policies in terms of how to assist these industries to address not just the challenges that they have currently identified, but also those which will arise in the future.

Public Venues

In our July 2024 response to ACMA's Consultation on Future use of the upper 6 GHz band Options Paper, Cisco highlighted the Sydney Opera House. As one of the most well-known tourist destinations in the world, they host over 10 million visitors each year, with events such as New Year's Eve bringing approximately 1.5 million spectators. With over half of those visitors being overseas tourists, guest Wi-Fi is critical for those individuals to stay connected. Even for Australian visitors, the 5G networks are overwhelmed, illustrating the importance of Wi-Fi offload. With a local capacity of 7,000 guests in the Sydney Opera House forecourt, at the recent December 2025 New Year's Eve and January 2026 Australia Day celebrations, over half of those attendees were connected to the Sydney Opera House guest Wi-Fi network. At the time of the 9 pm fireworks, individual client devices were consuming over 10 GB of data, in both the transmit and receive directions. As the forecourt area is outdoors, 6 GHz is currently unavailable. The congestion experienced would have been addressed with AFC to provide the much-needed additional spectrum capacity and outdoor coverage.

While this may be considered an extreme example of the public Wi-Fi requirement, it highlights the regular challenge of mobile networks becoming overloaded in peak times over the larger area, and the importance of Wi-Fi offload to provide localised connectivity. Similar experiences can be observed at sporting events and concerts throughout the year.

Education

At several large Australian universities, digital exams are a key use case illustrating the need for more bandwidth and spectrum. Universities are delivering mass student proctored digital exams for thousands of students in large auditoriums, allowing large student cohorts to sit exams simultaneously. This provides significant savings over traditional paper exams, while providing efficiencies for marking times, and improving student satisfaction. For proctoring and to address the threat of AI cheating, full screen streaming is required from each student laptop, as well as keystroke logging.

While universities are implementing this today under the current LIPD rules, AFC with SP will allow for higher transmit power and external antennas to provide greater flexibility in the deployments, allowing them to scale to greater numbers of students. Further, using AFC to allow for access to the full 1200 MHz before future IMT services are offered would provide the opportunity for that spectrum to be effectively utilised today.

Today, the content for exams is static, but in the future, there is a desire to deliver full multimedia and video exams. Early trials of this at some universities highlighted the current capacity concerns, and development was curtailed.

More broadly, universities across Australia are seeing between 3 and 4 devices for each student. Seamless mobility, supporting real-time applications, is a key requirement across the *entire* campus. AFC with SP will allow 6 GHz to span across the indoor and outdoor environments. Further, the universities are continuously needing more capacity across the different devices and applications. Leveraging AFC to provide access to the full 1200 MHz, even if only in a specific location, would be greatly beneficial to higher education in Australia.

In residential colleges, there will typically be several hundred rooms, with each room requiring its own AP. As with the residential apartment discussion above, having access to the full 1200 MHz of spectrum not only allows for wider channels and greater throughput, but in these high-density residential environments, the availability of the full band can help reduce co-channel interference of APs in close proximity to each other, improving the overall experience for all users.

IT departments at the universities are continuously receiving requests for new, innovative solutions. Virtual, augmented and mixed reality technologies feature prominently, for example, virtual art galleries or concerts, where the limitation is not physical space, but the spectrum and throughput necessary to allow large number of users to virtually attend the exhibits simultaneously.

Retail

A large Australian retailer maintains multiple expansive warehouses across the country. These are very large environments with high ceilings, and current deployments in the 5 GHz band are heavily reliant on directional antennas to provide the necessary coverage.

Increasingly, these environments are moving to autonomous solutions, requiring greater capacity and lower latency. Congestion is a regular issue, and SP will allow them to move into the 6 GHz band to address this challenge.

While much of the warehouse operations are focused on the indoor space, those networks are required to span to the outdoor perimeters where the trucks will arrive for loading and unloading. Initially, those solutions were planned around LTE deployments. However, in many of these locations, even those in metropolitan environments, the LTE coverage outside the warehouses is often too poor or non-existent. Wi-Fi is viewed as critical to ensure that the business can deploy the necessary network connectivity, where mobile coverage is insufficient or lacking, and the ability for the wireless coverage to be extended outdoor across both 5 and 6 GHz is key for service continuity.

Even in the retail store environments, the ability to access more spectrum is of increasing importance as more store operations are digitised. Within the typical shopping centre environment, the 5 GHz spectrum is heavily congested, impacting store operations. The availability of 6 GHz in such environments will alleviate the congestion.

Mining

The mining industry is the single largest sector of the Australian economy, contributing nearly 14% of GDP and providing over two-thirds of the country's export income⁸. In Western Australia alone, mining represents nearly half of the GSP.

⁸ <https://minetek.com/en-au/resource-hub/news/minings-contributions-to-australian-economy>

The surface mining equipment fleet encompasses all primary and supporting machinery use across mine sites for extraction and site operations. All such equipment and vehicles require connectivity for telemetry and control across the mine. Autonomous equipment and vehicles are particularly sensitive to any network impact. Given the size and speed at which they operate, they automatically cease activity when they lose connectivity as a matter of health and safety. This has a direct and costly impact on mining productivity.

Outdoor Wi-Fi is critical to mining operation for both autonomous and manned vehicles and equipment. As the mine sites are in a constant state of change, with large piles of ore and debris changing the topology, connectivity is typically maintained through a Wi-Fi mesh, with individual nodes repositioned as the environment changes.

The current mining environment in Australia sees heavy congestion in the 5 GHz band across the multiple point-to-point (PTP) and point-to-multipoint (PTMP) wireless links that are typically deployed across the mine site. Service trucks may often have LTE or 5G hotspots creating uncontrolled interference. A single tower is typically deployed, providing the backhaul at key sites, which will need to host multiple APs with highly directional antennas for the various PTP and PTMP links, all operating within line-of-sight of local building networks, resulting in a high noise floor and degraded performance.

This is further complicated by the IT (enterprise) wireless use cases which need to operate in parallel with the OT (operational technology) networks. While the IT network runs key enterprise applications around productivity and work management, the OT network is considered mission critical. As a result, the IT network is typically operated in parallel and restricted to a small number of channels to minimise impact on mining operations. However, this limitation hampers the enterprise applications.

SP supporting outdoor use of 6 GHz with higher transmit powers and directional high gain antennas will provide significant benefit to these environments and the mining industry at large, providing more spectrum to support both the IT and OT mining use cases, improving productivity, and minimising interference.

Conclusion

Cisco appreciates the opportunity to provide the above input to ACMA on the questions raised. This topic is important for the future of Australia, for connecting citizens and accelerating the industry digitalisation of your economy. We would be happy to discuss further on any further questions or follow up that you may have.

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