

Wireless Internet Service Provider Association
of Australia Inc

**Response to : Proposed Changes to the LIPD for
6GHz RLAN Consultation Paper - 11/2021**



The Manager
Spectrum Planning Section
Australian Communications and Media Authority
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Thank you for the opportunity to provide a response to the Proposed Changes to the LIPD for 6GHz RLAN Consultation Paper, the Association represents a wide variety of carriers in Metropolitan and Regional areas, typically smaller operators who have limited access to spectrum.

Summary

The WISPAU is in support of this initiative. We strongly support the implementation of an Automatic Frequency Control (AFC) system and would be very willing to facilitate its implementation.

We recommend that Australian regulators adopt a similar system to that which has been very successfully implemented in the United States; there are numerous Spectrum Access System (SAS) providers that have expressed interest in expanding operations to Australia.

Our recommendation is to consider implementing a full 1200 Mhz for WiFi 6 and BWA coordinated by an AFC, this would ensure greater access to spectrum for home users to eliminate bottlenecks and WISPS to provide essential services to underserved communities.

Regards,
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Issues for comment

Lower 6 GHz band/proposed update to the LIPD Class Licence

1. Are the proposed out-of-band emission limits of -37 dBm/MHz for outdoor very low power (VLP) devices and -27 dBm/MHz for low power indoor devices suitable, both in terms of protecting intelligent transport systems (ITS) services and their effect on the operation of RLAN devices near/adjacent to the 5925 MHz boundary?

Yes, WISPAU generally agrees with this proposal.

2. Is the specification of contention management protocols in the LIPD Class Licence necessary to enable equitable access between potentially competing technologies such as RLANs and 5G new radio-unlicensed (NR-U) services? If so, is the proposed condition, and the language used to express it, appropriate?

Yes, we agree that there is a requirement for protocols that allow coexistence and contention of the spectrum are required, however would suggest that they not be too prescriptive which may hinder innovation in future.

3. Are there any broader comments on the proposed update to the LIPD Class Licence?

Yes, we are aware that other jurisdictions are considering implementing the full 1200Mhz spectrum for use by both Wi-Fi 6 and BWA, we would encourage the ACMA to do the same.

The justification for making 500 Mhz available is to partially or fully reduce the “weakest link” problem of terminal-end wifi capacity however while seeming like a significant amount of bandwidth in 2021 technology has historically developed quite rapidly and bandwidth demand seems to be increasing faster than regulators are capable of responding.

We would suggest a proactive approach and make the entire band available and avoid the inevitable follow up discussion in a few years time.

Upper 6 GHz band/higher power RLAN devices

4. Should the ACMA make arrangements that permit high-gain directional antennas (for example, for wireless internet service providers in remote areas) under a class licensing regime?

Yes, we strongly support this proposal, high gain directional antennas especially used in regional and remote areas provide critical communications services to those typically underserved communities.

High gain antennas typically have a very narrow beam width, minimising any potential interference to other nearby transmitters.

5. If 'high power' class-licensed devices were to be introduced under an AFC system, what aspects of the system would need to be considered in setting it up? Is there interest from industry in administering such a system?

WISPAU have been long time advocates for a Dynamic Spectrum Licensing System (DSLM) or Automatic Frequency Control (AFC) system, as noted this type of arrangement has been very successful in other countries such as the US, Canada and South Korea.

6. If 'high power' class-licensed devices were to be introduced under an AFC system:

> Is there interest from industry in administering such a system?

Yes, WISPAU is both technically and operationally capable as well as an extremely willing organisation to facilitate the implementation of an AFC in Australia.

There are a number of examples world wide that demonstrate how successful such a system can be, as well as an ecosystem of spectrum access systems (SAS) and equipment vendors offering equipment fully compatible with existing control systems.

Australia would simply be adopting a tried and tested technology.

> Are there any impediments to developing and/or operating a system in Australia? What could be done to help enable, or otherwise encourage, the development and/or operation of a system in Australia?

The primary impediment are regulatory barriers, however we are extremely encouraged by the recent proposals from the ACMA and the willingness to consider the implementation of such a system.

We have had several discussions with existing US based vendors about implementing an AFC system in Australia all of which were extremely positive and showed a willingness by both industry and existing established providers to offer such services.

The spectrum access systems (SAS) are already in operation to coordinate the CBRS system in the US are sophisticated and well developed, the WISPAU would be very willing to facilitate implementation in Australia.

> To what extent would an Australian system need to be aligned with those to be implemented elsewhere? What scope could there be for customisation in an Australian system?

As Australia is a relatively small market and WISP operators are a small subset of this market it would be in our interests to stay aligned with existing systems and protocols, this would allow easier implementation by spectrum controller platforms and equipment vendors thereby giving Australia access to what are currently well developed mass market products.

> **What aspects of an AFC system would need to be considered in the design, establishment, and ongoing operation, of such a system, including:**

- > **regulator and industry commitments**
- > **technical spectrum coordination and coexistence rules – for example, a tiered hierarchy framework for spectrum uses**
- > **IT infrastructure and system design, including security and system reliability issues**
- > **communication interfaces between an AFC system, the ACMA's Register of Radiocommunications Licences (RRL) and devices**
- > **ongoing interaction between the ACMA and system operators**

Australia is in the fortunate position to be able to take all the best parts of existing AFC systems and make incremental improvements as required.

As an industry representative body the Wireless Internet Service Provider Association of Australia (WISPAU) is an ideal candidate for the administration of such a system.

The link below shows the current CBRS Network Architecture -this article explains the Spectrum Access System (SAS) Interface and Operation. Australia must adopt a similar system.

<http://www.techplayon.com/cbrs-network-architecture-and-spectrum-access-system-sas-operation/>

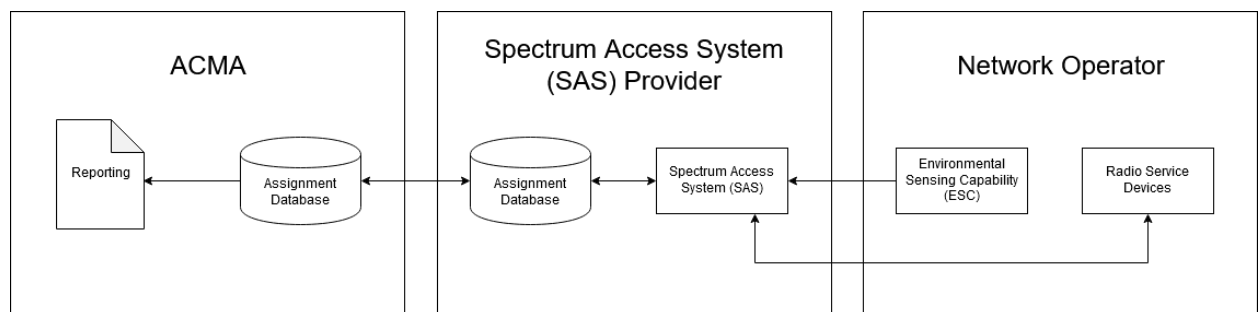


Diagram Above is a simplified illustration of the components required to maintain a DSM system:

- **ACMA** - Provides regulatory framework including database structure, assignment rules, and reporting which can include tax payable by the Spectrum Access System Provider or Network operators.

- **Spectrum Access System (SAS) Provider** - develops and maintains the assignment systems in accordance with the regulatory framework, updates the assignment database which in turn synchronises with the ACMA and other SAS operators, they can also be involved in tax collection for smaller operators.
- **Network Operators** - As a condition of obtaining a license network operators can be required to deploy and maintain Environmental Sensing equipment, the radio service devices deployed would register with the SAS, then request spectrum resources and maintain a heartbeat to ensure continued operation.
- **Assignment Database** - This database should be constructed by the ACMA and distributed via secure blockchain technology to all SAS providers.

7. If 'high power' devices were to be introduced under a manual registration process, what might those arrangements look like? Would the introduction of apparatus licensing for such devices be an appropriate option?

The most important thing is access to spectrum, if the decision is made to implement a manual process over an automated one we will lose efficiency and features such as rapid clearing of a band for priority access seekers, but most importantly still have access to spectrum.

We also note that an automated system is likely to promote much greater data integrity than a manual system, each radio would be reporting its status live which in turn would be reflected in the Spectrum Access System database.

8. Would there be advantages in implementing different licensing and/or access management arrangements in different geographic areas for the use of high power RLAN devices?

Our preference would be to have an Automated Frequency Control (AFC) system operating nationally however if for one reason or another high density areas had to be excluded then arrangements in Regional and Remote areas would be better than nothing.

9. Are there additional sharing scenarios and/or studies relevant to this band that have not been identified in this paper?

Not that we are aware of.

5 GHz band

10. In addition to comments made to the April 2021 consultation paper, do you have any comments on the other proposals for updates to the 5 GHz band listed in this paper?

We would like to see high powered outdoor devices permitted to be used in the 5150 - 5350 band at a minimum of 4 watts.

11. If outdoor and/or higher power RLAN devices were authorised in parts of the 5 GHz band (for example, 5150–5250 MHz), would it be appropriate to implement measures similar to those being considered for high power devices in the 6 GHz band (for example, a registration system, or apparatus licensing)?

If the ACMA are willing to police unauthorized use of this band in a high powered outdoor environment then implementation of an AFC system may be desirable to mitigate interference, however there is already substantial use within this band and the practicalities of clearing high powered transmitters may be challenging.

Instead we would suggest simply changing the existing regulations to allow the use of transmitters outdoors at higher EIRP and put effort into other unused bands when implementing AFC systems.

12. If high power devices were to be authorised in both the 5 GHz and 6 GHz band, would it be appropriate to use the registration/authorisation method and system for both?

No, as stated above we believe efforts are best focused on implementation of an AFC system for the 6GHz band as it's effectively a clean slate, since there are existing transmitters in operation within the 5Ghz band that do not support dynamic frequency assignment this has a real potential to undermine the effectiveness of an AFC system.