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July 16, 2024

The Manager
Spectrum Planning Section
Australian Communications and Media Authority (ACMA)
PO Box 78
Belconnen ACT 2616

Re: Comments on Future use of the upper 6 GHz band Options paper

Dear ACMA -

Federated Wireless, Inc. (Federated Wireless), the industry leader in the development and deployment of commercial dynamic spectrum management solutions (DSMS), offers these comments in response to ACMA's "Future use of the upper 6 GHz band Options paper" (the Options Paper).

With our experience in dynamic spectrum sharing in the 3 and 6 GHz bands in the United States and in the 3.8 GHz band in the United Kingdom,[1] Federated Wireless appreciates the opportunity to offer our perspectives on how ACMA can leverage commercially available DSMS tools and technology to achieve its goals of optimizing the use of the upper 6 GHz band while maintaining arrangements for – and coexistence with – existing services.[2] Federated Wireless has already achieved these same goals for the bands we manage, providing spectrum access services to hundreds of thousands of commercial devices while fully protecting incumbent services.

Our comments on ACMA's Options Paper are split into two sections: 1) introduction of Standard Power under AFC management and 2) future of the upper 6 GHz band.

[1] Federated Wireless is an FCC certified Spectrum Access System ("SAS") administrator for the Citizens Broadband Radio Service ("CBRS") band and a certified Automated Frequency Coordination ("AFC") system operator for the 6 GHz band. In addition, as part of the 5G Testbeds and Trials Programme funded by U.K. Department for Digital, Culture, Media & Sport, Federated Wireless Federated Wireless developed a software toolkit that enables a prospective applicant for Ofcom's Shared Access Licenses (SAL) to make inquiries in advance of filing an application to identify spectrum availability and to tailor the SAL application to increase the likelihood of acceptance.

[2] See Options Paper, p. 1.

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A. AFC Management of Standard Power and Outdoor RLAN Operations

As discussed in prior responses to ACMA consultations, Federated Wireless urges ACMA to move as soon as possible to enable Standard Power as well as outdoor operations in conjunction with AFC systems in the 6 GHz band. As a commercial AFC system operator in the United States and an AFC system applicant in Canada, we are managing access to the 6 GHz band by both enterprise and fixed wireless access devices that are taking advantage of the higher power levels (up to 36 dBm) and the increased operational flexibility that the rules for Standard Power devices allow.[3] We also see widespread interest by incumbents in the bands for the use of AFC systems to ensure protection from harmful interference and as a mechanism for identifying and mitigating interference should it occur.

The introduction of 6 GHz Standard Power operations across Australia need not involve a significant amount of work, as posited in the Options Paper.[4] ACMA can readily and easily leverage commercially available and proven AFC systems and certified AFC-managed devices to take advantage of the growing global ecosystem and immediately enhance broadband connectivity for Australian enterprises and consumers. ACMA can also leverage the FCC's (and/or ISED's) rigorous testing program, which included both lab testing and a public trial, and resulted in the certification of seven different AFC system operators, including Federated Wireless.[5]

Were ACMA to open an application window for prospective AFC system operators, it could permit applicants who have been certified by either the FCC (and/or ISED) to operate in Australia once they have demonstrated that their AFC systems can interoperate with ACMA's incumbent licensee database[6] and that their AFC systems have successfully incorporated Australian terrain and clutter information. These demonstrations could be made through self-test reports that would be submitted to ACMA for its review and approval.

Given the significant prior standards work of the Wi-Fi Alliance and WInnForum, as well as the regulatory oversight by the FCC and ISED, the AFC certification process in Australia could be completed in a matter of months, if not weeks. Indeed, were ACMA to proceed as suggested, by the end of 2024, Australian enterprises and consumers alike could be taking advantage of the latest generation broadband technology and associated higher speeds and throughput. Conversely, adopting an approach for AFC systems that differs from the United

[3] In the United States, the FCC currently permits Standard Power devices to operate in conjunction with an AFC system in both U-NII-5 (5.925-6.425 GHz) and U-NII-7 (6.525-6.875 GHz), comprising a total of 850 MHz of spectrum. In Canada, ISED permits Standard Power devices in both U-NII-5 and U-NII-7, as well as in 6.425-6.525 GHz, comprising a total of 950 MHz.

[4] See Options Paper p. 30.

[5] https://www.fcc.gov/document/oet-announces-approval-seven-6-ghz-band-afc-systems.

[6] We agree with ACMA's assertion in the Options Paper that incumbent licensees should be required to update their information in order to receive protections from new RLAN devices.

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States and Canada will likely result in significant delay and risk to the adoption and proliferation of Standard Power operations in Australia.

Federated Wireless welcomes discussion with ACMA and other prospective AFC system operators to develop a process and timeline that will enable ACMA to certify AFC system operators quickly and efficiently.

B. Options for the Upper 6 GHz Band

In addition to assisting ACMA with its efforts to enable Standard Power operations while protecting incumbents in the 6 GHz band, Federated Wireless is also eager to work with ACMA on its plans for the upper 6 GHz band.

Federated Wireless believes ACMA can make the upper 6 GHz band available immediately for RLAN operations, including Standard Power, while simultaneously enabling existing services to continue uninterrupted and preserving flexibility and optionality for the introduction of other wide-area wireless broadband (WA WBB) technologies, such as IMT, in the future. ACMA need not take decisions that would preclude any of these options at this time but can instead take advantage of the existing ecosystem for 6 GHz RLAN devices while observing whether and how the ecosystem for IMT develops.

There is no question that our AFC system with its scalable, automated architecture is designed to protect incumbent upper 6 GHz operations from new RLAN devices, which will maximize the use of these frequencies. This is precisely what we do today in the upper 6 GHz band in the United States where we currently manage thousands of Standard Power devices supporting both enterprise and consumer-oriented services across the country.

With respect to the introduction of RLAN and WA WBB services, should ACMA permit RLAN services to operate in the upper half of the 6 GHz band under management of an AFC system in the near term and later decide to license spectrum to WA WBB (and prioritize WA WBB use over RLAN operations), ACMA could simply direct AFC system operators to revise spectrum availability for RLAN devices as IMT systems are deployed. With information about IMT system deployments (i.e., the same information that IMT systems currently provide to our CBRS SAS to enable sharing of the 3.5 GHz band), our AFC system can protect the IMT systems' coverage areas (much like the SAS protects CBRS Priority Access Licensees' protection areas, known as PAL Protection Areas or PPAs), while maximizing channel and transmit power availability options for RLAN devices. Neither the AFC nor RLAN functionality would need to be changed in any way to enable this adjustment in spectrum availability for RLAN devices.

Alternatively, were ACMA to decide to authorize IMT systems on a co-equal basis with RLANs (e.g., enabling both systems to use available frequencies on an opportunistic basis, while maintaining the primary status of incumbent services) Federated Wireless is confident that we could adapt our DSMS technology to manage access by both types of services. By requiring

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IMT and RLAN devices to register and check-in with an AFC to receive channel and transmit power availability, we would continue to protect incumbent systems and create a truly hybrid sharing experience. Federated Wireless is currently working with other national regulatory authorities in Region 1 to develop such a hybrid dynamic sharing solution.

In summary, Federated Wireless offers the following recommendations on the four options ACMA has presented in its Options Paper:

Option 1: Maintain existing arrangements, with potential reconsideration at a later date.

> Federated Wireless believes it would be a wasted opportunity not to allow RLAN devices to operate across the entire 6 GHz band and therefore opposes Option 1. The ecosystem for RLAN equipment exists today and is growing rapidly. Enterprises and consumers across Australia can benefit immediately from the availability of additional spectrum to support the latest generations of Wi-Fi and other license-exempt technologies.

Option 2: Introduce arrangements to enable RLAN access to some or all of the upper 6 GHz band, via a variation to the LIPD Class Licence. There would be no introduction of arrangements introduced for WA WBB.

> Federated Wireless strongly supports Option 2 and urges ACMA to move forward with the introduction of RLAN across the entire upper 6 GHz band and include all device classes, including Standard Power under the management of one or more AFC systems. As described above, the introduction of arrangements for WA WBB could be considered at a future date.

Option 3: Introduce arrangements to enable WA WBB access to some or all of the upper 6 GHz band, using apparatus and/or spectrum licensing. There would be no arrangements introduced for RLANs.

> As there is no equipment ecosystem for WA WBB equipment in the upper 6 GHz band at this time, Federated Wireless considers it premature to introduce arrangements and/or to undertake the costly and time-consuming effort of clearing incumbent systems. It would also be a missed opportunity for the introduction of the latest generations of Wi-Fi technology.

Option 4: Introduce arrangements to enable both RLAN and WA WBB access to different frequency segments within the upper 6 GHz band, using the respective authorisation arrangements in options 2 and 3.

> Federated Wireless believes that segmenting the upper 6 GHz band would be an inefficient use of the upper 6 GHz band. Therefore, we recommend a variation on Option 4 that would permit sharing amongst the three services (incumbents, RLANs, and WA WBB) using modern spectrum management techniques rather than band segmentation.

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First, as explained above, the equipment ecosystem for RLANs exists today and can take immediate advantage of these frequencies without interruption to incumbent services. AFC systems can be introduced easily and provide enterprises and consumers with access to the latest generations of Wi-Fi and other license-exempt technologies.

Were ACMA to see demand for and development of IMT systems in the upper 6 GHz band in the future, it could leverage AFC systems to adjust the amount of spectrum available to RLAN systems as those IMT systems are deployed and grow. RLANs could continue to take advantage of access to the upper 6 GHz frequencies wherever an AFC determines RLAN operation would not interference with an incumbent user or a higher priority IMT user. While there would be less spectrum available for RLANs under this approach, it would still be far more efficient than band segmentation and would permit each type of service offering to develop without regulatory imposed constraints.

Alternatively, as described in greater detail above, Federated Wireless is confident it can adapt its AFC system to permit both RLAN and IMT systems to access spectrum in the upper 6 GHz band on an opportunistic (e.g., license by rule) basis while permitting incumbent systems to continue to operate without interruption.

C. Conclusion

Federated Wireless appreciates the opportunity to provide our perspectives on the introduction of Standard Power RLAN devices under management of one or more AFC systems. We encourage ACMA to move expeditiously to establish rules to permit Standard Power devices and to leverage the rigorous testing that AFC systems have already undergone in the United States and Canada to accelerate access to this spectrum for a wide range of enterprise and consumer services. Federated Wireless would be happy to support a demonstration of its AFC system for ACMA at any time. We further encourage ACMA to permit all RLAN device classes to operate in the upper 6 GHz band in the immediate future given the existing and growing ecosystem and the ability to share efficiently with incumbent systems. Finally, we also look forward to exploring how our dynamic spectrum sharing technology and tools can be leveraged to introduce even greater flexibility for shared spectrum access in the future, should ACMA seek to permit hybrid sharing in the upper 6 GHz in the future.

Respectfully submitted,

/s/ Jennifer M. McCarthy
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