



IFC 25/2019 Open Spectrum Submission

New approaches to
spectrum sharing

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Mr. Christopher Hose
Manager, Spectrum Planning and Engineering Branch
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Red Building, Benjamin Offices, Chan Street
Belconnen ACT 2617

Dear Mr. Hose,

Introduction

Open Spectrum thanks the ACMA for consulting on new approaches to spectrum sharing, and for keeping an open mind to innovative mechanisms for sharing the valuable national resource of radiofrequency spectrum.

Demand for spectrum sharing arrangements

Wireless broadband (WBB) communications is continually facing spectrum shortages to keep up with demand for capacity—either currently or based on near- to medium-term projections. Wireless ISPs (WISPs) have expressed interest in spectrum sharing arrangements, for example, with the Department of Defence (Defence) in the band 3GPP Band 52 3300-3400 MHz¹, particularly for provision of WBB connectivity in rural and remote areas. Demand for WBB capacity in mining and ports areas (through e.g. “Private LTE”) persists and in regional areas the answer is often that there are no spectrum arrangements that could support such operations.

As mentioned by the ACMA, any new lower-tier users would have to understand and accept that they would have to make way for the incumbent/higher-tier user. WISPs have indicated that they could fall back to other bands if required¹.

Pre-emption method

We support the pre-emption method as it could suffice in a significant proportion of sharing scenarios between incumbent and new lower tier uses. Pre-emption method is more than enough where operation is not mobile (i.e. stations actually in motion over a wide area and not communicating through on fixed location base station). Real-time monitoring and access/denial is probably overkill if changes in spectrum use occur on the timescale of months instead of hours or days.

We believe that the pre-emption method would suffice for, for example, WISPs in inland areas where the base station (and even the terminal stations for internet connectivity to the home) would all be fixed and permanent/semi-permanent installations.

Defence bands like 3300-3400 MHz and 4500-4990 MHz are good examples. Or bands with relatively static use like 4 GHz and 6 GHz (Earth stations and fixed links). The main distinction between the two is that there are no registrations in the ACMA's Register of Radiocommunications Licences (RRL) in the case of Defence bands. In commercial bands on the other hand, coordination can be completely carried out by application of the ACMA's frequency assignment requirements against registered stations.

¹ ACMA, August 2019, Spectrum tune-up: New approaches to spectrum sharing, see: <https://www.acma.gov.au/theACMA/spectrum-tune-up-new-approaches-to-spectrum-sharing>

In Defence bands, for areas where spectrum use is typical or ongoing and “white space” in the temporal domain is unlikely for most of the time (e.g. military bases etc), fixed & permanent exclusion zones can also be implemented. However, these should be based on ‘optimistic’ rather than worst-case parameters.

Higher-tech methods

We also applaud the ACMA’s initiative to consider more complex methods in its Tune Up and consultation paper. We encourage the ACMA not to shy away from more facilitating more complex systems if the required innovation and/or investment comes from industry.

Higher-tech solutions involving sensing networks may be required for situations with highly mobile systems like stations on board aircraft or ships (e.g. aeronautical mobile in the 4400-4990 MHz band).

Depending on the timeframe to implement the DSA and to achieve an adequate level of market penetration by devices supporting the DSA, in the meantime, large swathes of Australia’s geography outside exclusion zones could be made available based on the pre-emption method. These exclusion zones could be set up either permanently around common flight paths (and coastal areas in the case of 3300-3400 MHz) or on a temporary basis around planned flight paths through the pre-emption method (these exclusion zones for mobile stations could be based on worst-case parameters).

Responsibility

Could look to the existing model for Accredited Persons; system is built on professional competency, engineering judgement & following any relevant legislation and ACMA policy. ACMA enforcement still required for resolving interference.

ACMA backstops/failsafe checks can be implemented, noting the ACMA also benefits from savings in reduced management of the band and/or additional licence tax income through increased use of spectrum.

Summary

In summary, Open Spectrum supports the ACMA’s consultation on the subject, keeping Australia abreast of the latest technological developments worldwide and for its openness to considering innovative spectrum management approaches to make the most of this valuable resource.

- There is indeed demand for access to spectrum not met by existing spectrum arrangements, including but not limited to regional WBB and private LTE in the mining/resources sector.
- Considerable amount of spectrum and geographical areas could be opened up through existing coordination techniques complemented by the ACMA’s proposed ‘pre-emption’ method.
- We encourage the ACMA not to shy away from more facilitating more complex systems if the required innovation and/or investment comes from industry.

- Band management role could mirror existing AP structure, combined with a continued requirement for ACMA enforcement.

Open Spectrum looks forward to continue working with the ACMA and the wider radiocommunications industry.

Yours sincerely



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