



nbn's submission on Replanning of the 3700–4200 MHz band, Options paper

16 September 2020

Thank you for the opportunity to comment on the issues set out in the 'Replanning of the 3700–4200 MHz band, Options paper, July 2020'.

nbn's spectrum requirements are developed to ensure that it meets the Federal Government's expectation that all Australians have access to very fast broadband as soon as possible, at affordable prices, and at least cost to taxpayers, and that upgrade paths are available as required. The flexibility of the multi-technology mix approach enables **nbn** to build the network using the technology best matched to each area of Australia, and spectrum requirements are determined in this context.

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The continued increasing demands by Australians on **nbn**'s FW network including those that will result from **nbn**'s Statutory Infrastructure Provider (SIP) obligations means that access to a sufficient amount of suitable spectrum, namely mmWave or 3.8 GHz, for upgrades to the FW network is essential for **nbn** to improve network capacity and meet evolving customer experience requirements.

nbn is not considering the 3.8 GHz band as an upgrade path for its satellite network.

We set out below our views on preferred planning arrangements, potential **nbn** use case and related spectrum requirements.

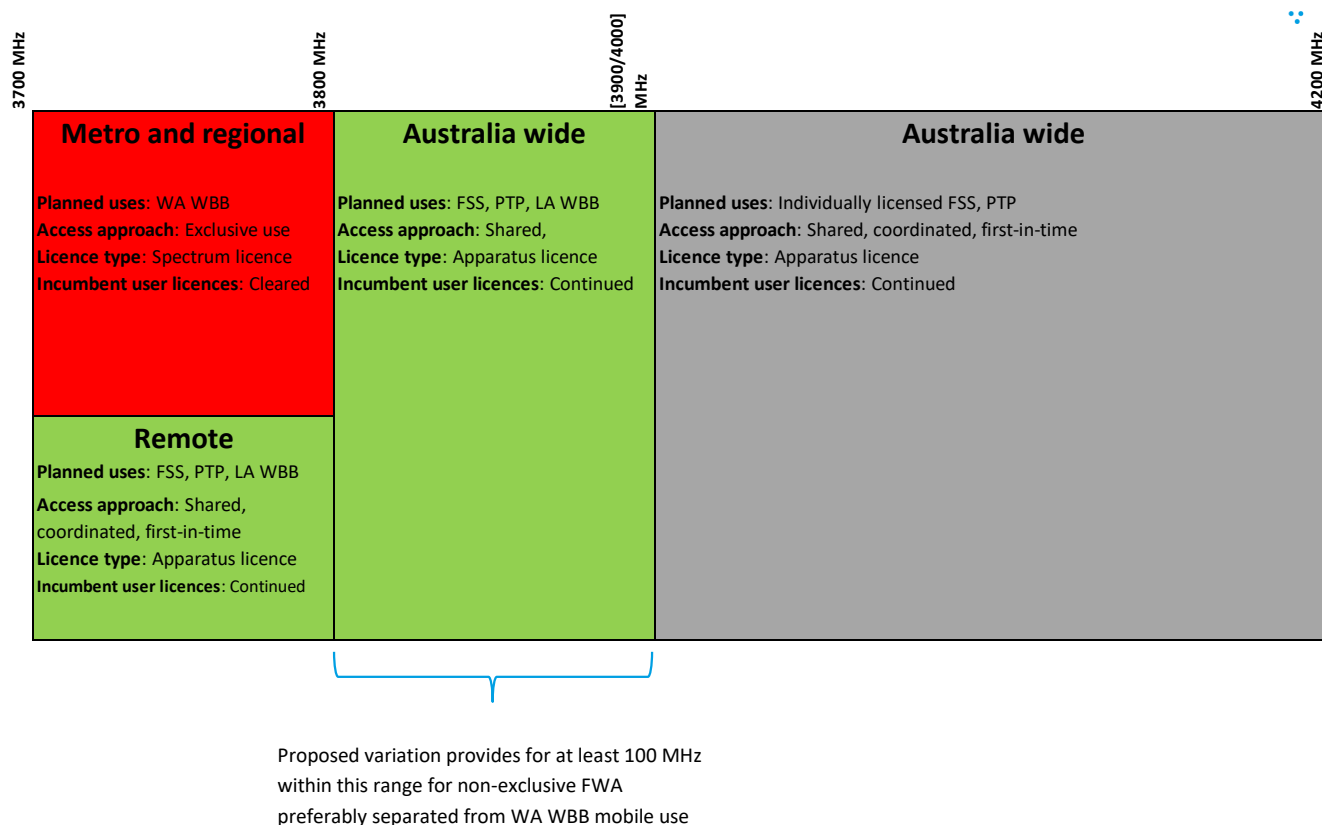
nbn supports option 3 with a variation to include at least 100 MHz contiguous for wide area FW

nbn notes ACMA's example articulating our Fixed Wireless network as an example of the Wide Area (WA) WBB service application / service use category. However, other than the physical area of coverage due to our national remit, our deployments are likely to be far more similar to a Local Area (LA) WBB network than of the other WA WBB networks. As such, we respond on the basis that the spectrum allocated for LA WBB would be most appropriate for our use case.

We support 4000 MHz as the proposed frequency segment breakpoint. Given ACMA's preference to minimise disruption to existing incumbent services, a wider allocation of the band would facilitate practical frequency planning as required to avoid encumbering any new services sharing this band segment.

However, we suggest a variation to option 3 as set out below:

- The use of band segmentation should include at least 100 MHz contiguous for wide area Fixed Wireless use.
- This segment could fall within the 3800-4000 MHz range and be shared (i.e. non-exclusive) with incumbents and any new planned users (i.e. Fixed Satellite Service, Point-To-Point and Local Area Wireless Broadband users) on a coordinated first-in-time basis absent a more suitable option being identified.
- The separation of the minimum 100 MHz contiguous band by frequency from Wide Area Wireless Broadband mobile users (i.e. the spectrum is not directly adjacent in frequency) minimises the potential for interference and any synchronisation requirements.



We consider that Option 3 with the proposed variation provides the following benefits:

- An appropriate balance between MNO exclusive-use, continued support for incumbent users and spectrum for wide area FW networks like that deployed by **nbn** and local area FW networks.
- Enabling **nbn** access to a pool of suitable spectrum on a shared basis without competing for exclusive-use mobile spectrum.
- Enabling the overall public benefit of the spectrum to be maximised and provide **nbn** with the option to obtain required spectrum to meet customer experience requirements and the Government's expectations.

Potential nbn use case and spectrum requirements

Access to a sufficient amount of suitable spectrum for upgrades to the FW network is essential for **nbn** to improve network capacity and meet evolving customer experience requirements.

- **Amount of spectrum.** The proposed variation to Option 3 is likely to facilitate access by **nbn** to a pool of suitable spectrum on a shared basis without competing for exclusive-use mobile spectrum. **[C-i-C] [C-i-C]**
- **Frequency requirements.** The expected capacity layer use of the 3.8 GHz band spectrum means that it would be desirable that the proposed contiguous minimum 100 MHz for use by fixed wireless networks be separated in frequency from the spectrum proposed for use by MNOs. That is, the contiguous minimum 100 MHz for use by fixed wireless networks is not directly adjacent to the proposed frequencies for use by MNOs. This is given the decreased flexibility that would result from any synchronisation requirements that inform the amount of spectrum that can be used for uplink and downlinks. We note,



for example, the significant unanticipated increase in uplink demand resulting from changes to customer demand due to COVID 19.

- **Geography requirements.** It is anticipated that any 3.8 GHz band spectrum requirements would cover the entirety of **nbn**'s FW network footprint. The FW network covers Australian homes and businesses in the outer-metro, regional and rural areas of Australia.
- **Licensing arrangements.** **nbn** notes the proposal for apparatus licensing in 3800-3900/4000 MHz and the importance of the technical framework, pricing, allocation mechanisms and certainty of tenure.
- **Timing requirements.** The current timelines appear appropriate based on available information. [C-i-C]
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nbn is not considering the 3.8 GHz band as an upgrade path for its satellite network.