



# nbn's submission on ACMA's Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services and 28 GHz fixed- satellite services

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Thank you for the opportunity to comment on the issues set out in ‘Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services and 28 GHz fixed-satellite services, consultation paper, December 2021’.

**nbn** operates both the largest fixed wireless network and satellite network in Australia. As such, we have explored the viability for these two technology types to co-exist in great detail as this is of critical concern to facilitate the successful sharing of spectrum in the 28.5GHz to 29.5GHz frequency range by **nbn**’s satellite network and fixed wireless network. Specifically, the use of very small aperture terminals (VSATs) as part of **nbn**’s existing fixed satellite network and future **nbn** fixed wireless upgrades to 5G. A study of the interference potential between fixed VSATs and a fixed wireless network are provided as Attachment A, we believe this demonstrates that these two services in particular are compatible with effectively minimal to no exclusion zones.

We appreciate ACMA’s efforts to ensure the primary services including fixed wireless are well protected in the 27.5 – 28.3 GHz frequency range. However, we would like to highlight the following considerations relevant to the ACMA’s objectives, including the efficient allocation of spectrum to the highest value use cases.

- Land based earth-stations-in-motion (ESIMs) and fixed VSATs have quite different antenna characteristics and very different usage behaviours.
- At present, the effect of the proposal would be to completely exclude fixed VSATs from operation within the populated areas where fixed wireless is a primary service. **nbn** already has significant VSAT deployments within these areas. [C-i-C] [C-i-C] We believe that spectrum in the 27.5 – 28.3 GHz frequency range will be key to meeting future capacity needs for those users reliant on a satellite service to bridge the digital divide.
- The deployment of fixed wireless in the 27.5 – 28.3 GHz frequency range may be considered by alternate network providers but may not be offered or be technically feasible for all end users in the populated areas, noting **nbn**’s statutory infrastructure provider obligations.

In order to achieve an outcome that promotes the most efficient use of spectrum and balance the cost of interference and the benefits of greater spectrum utilisation, **nbn** proposes a separate category for L-ESIMs and VSATs. This would enable the two largely compatible use cases of fixed wireless and VSATs to co-exist and serve the population where both are required without creating any areas of reduced or limited service availability for either. As our study demonstrates, there is little likelihood of interference from a VSAT to a fixed wireless service operating in the same frequency, except within the most extreme proximities. We therefore propose that VSATs be able to be deployed throughout the 27.5 GHz - 28.3 GHz frequency range as is currently possible in other parts of the 28 GHz band with the same technical framework as established for the 28.3 – 29.5 frequency range for VSATs to apply to the 27.5 – 28.3 frequency range. This approach would enable satellite networks to leverage this spectrum for VSATs which our analysis indicates impose a low interference risk to fixed wireless networks and offer end users an improved customer experience.

**nbn** supports the proposals with respect to L-ESIMs since these present a far less certain and controllable interference source for a fixed wireless network.