

Public

11 May 2022

The Manager
Spectrum Licensing Policy
Australian Communications and Media Authority

By email: spectrumworkprogram@acma.gov.au

To the Manager

Re: ACMA Five-year spectrum outlook 2022–27 and 2022–23 work program: Draft for consultation

TPG Telecom welcomes the opportunity to comment on the above consultation.

TPG supports and endorses the AMTA's submission to this consultation.

In addition, TPG Telecom considers the allocation of additional mid-band TDD 5G spectrum is an important industry issue that should be addressed in this FYSO. This shortfall has significant implications for consumer and business use cases, for the industry, and for the wider economy generally.

Unless higher priority is placed on making significant amounts of spectrum above the 4 GHz band available, then there is a risk that Australia will face a severe mid-band spectrum shortfall prior to 2030.

To address these concerns, TPG Telecom believes the scope of the 4.5 GHz band study should be increased to the entire n79 band (4400-5000 MHz), and that priority be placed on 5G for the upper 700 MHz of spectrum in the 6 GHz band (6425-7125 MHz). For these important bands, allocation should be made in this FYSO period, ending 2027.

Further, TPG Telecom believes allocation of the 600 MHz band should be made briefly prior to, and in conjunction with, the expiry of other low-band licenses in 2028-2030. This means that the 600 MHz allocation should be prepared towards the end of this FYSO period, ending 2027.

1. Spectrum Implementation

We note that the ACMA has finished the planning phase of spectrum in the 3400-4200 MHz frequency. The result is that only 325 MHz of spectrum in that band is available for spectrum licenced 5G wireless broadband (**WBB**) services in metropolitan Australia, including in the prospective 3700-3800 MHz auction scheduled for 2023.

TPG Telecom believes that 325 MHz of spectrum for 5G WBB services is insufficient, noting that this amount of spectrum is significantly lower than the spectrum allocated in peer jurisdictions for 5G WBB services.

As discussed in TPG Telecom's previous submissions, 5G traffic forecasts indicate that about 200 MHz or more of C-Band spectrum for 5G WBB is required per mobile network operator (**MNO**) by 2030. Given the relatively low quantities of 5G mid-band TDD spectrum allocated to date and the current highly asymmetric holdings, it is critical for the ACMA to plan for more of this spectrum to be available in the near term.

Accordingly, the 'Implementation' planning stage of this spectrum band should be completed and the remaining spectrum re-allocated for 5G as soon as possible. This will minimise the impact on consumer and other services and promote the efficient use of spectrum.

TPG Telecom supports a two-year re-allocation period for the final 100 MHz of spectrum in the 3700-3800 MHz frequency. We believe the ACMA should encourage NBN Co to efficiently restack and rationalise its holdings and modernise its product design to prevent the sterilisation of 75 MHz of prime 5G metro spectrum that is currently occurring. This spectrum could otherwise be used for future 5G WBB services.

We support the ACMA taking a Highest Value Use (HVV) approach earlier than otherwise proposed. This would result in a better outcome for industry and allow for the efficient use of the band.

2. Annual work program

Due to the allocation shortfall of spectrum for 5G WBB services, we believe the industry requires more 5G sub-6 GHz spectrum in the medium term.

We note that spectrum in the 4.4-5.0 GHz frequency has been allocated in multiple countries and is gaining traction. This means that the ecosystem is already being established amongst RAN and device vendors. In this context, we believe there is a basis for the ACMA to form a band plan and license conditions for the 4.4-5.0 GHz band. The priority of the n79 band should also be elevated to provide allocation and access to more spectrum in Australia prior to 2030.

Specifically:

- The 4500-4800 MHz frequency should be allocated to the 'Initial Investigation' planning stage. The anticipated FSS incumbency issues also apply to other countries and the only significant remaining incumbency to resolve is relation to the Department of Defence.
- We understand that 600 MHz of n79 spectrum may be available. This spectrum can support beamforming up to 128TRX with reasonable radio propagation. Accordingly, this is a vital resource for expansion in this market and must be considered with due attention.

The ACMA has placed the 6 GHz band (5925-7125 MHz) in the 'Initial Investigation' stage. The 6 GHz band could substantially alleviate the 5G WBB spectrum shortfall. Depending on the outcome of WRC-23, TPG Telecom would support allocation of the upper 700 MHz (6425-7125MHz) of spectrum in the 6 GHz band. Though propagation aspects mean that it is not a substitute for the lower C-band spectrum (3.4-4.0 GHz), it can still augment the current C-Band spectrum and bring significant capacity benefits, subject to appropriate conditions that imbue utility.

In relation to the 600 MHz band, there is an ongoing requirement for additional low-band spectrum due to its disproportionately low availability and superior coverage compared to bands above 1 GHz. Whilst the 600 MHz band has significant incumbency issues, it is the only foreseeable untapped low-band resource with a large band range. It is also supported by a viable ecosystem, including usage in North America.

We note that the cost of low-band spectrum and its deployment are very expensive. This is primarily because of the large antennas and substantial property apertures required. For this reason, and recognising its scarcity, it is paramount that MNOs can develop a cohesive long-term low-band spectrum strategy, which ensures that appropriate investments can be made.

It is difficult to formulate such a strategy if related license renewals and allocations do not take place simultaneously or in parallel and, rather, a 'one-by-one' approach is adopted. In light of this, we believe the allocation of the 600 MHz band should be coordinated with the license expiry of the 700 MHz (Dec 2029) and 850 MHz (June 2028) bands. This will give MNOs an opportunity to form a cohesive strategy and make investment decisions with some degree of certainty about these three bands. This suggests that an allocation

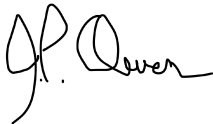
prior to, but near 2028, is appropriate and allocation planning phases should be timed accordingly so that there is sufficient time for incumbency constraints to be resolved.

TPG Telecom believes there should be efficient allocation by competitive auction for this new low-band resource. However, if qualitative-based allocation methods are employed to facilitate “a diversity of use cases” e.g. preset pricing for AWL’s, then TPG recommends that the price paid should be fair to all and pegged to a common benchmark – i.e. auction outcome price for the surrounding area.

This will ensure that all parties pay for access in accordance with a per MHz/pop basis and that parties allocated spectrum licenses are not placed in a position where they are effectively subsidising other allocations e.g. AWLs. Establishing a consistent per MHz/pop basis also ensures that a fair price is paid and recognises that smaller geographic products associated with AWLs have the adverse impact of increasing the coordination boundaries, which reduces the utility of the spectrum overall, including for spectrum licences.

We trust this assists the ACMA in its development of the FYSO and work plan. Please feel free to contact Jeffrey Owen if you have any questions in relation to this letter.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'J. Owen'.

Jeffrey Owen
Head of RAN Strategy

TPG Telecom Ltd