



CONSULTATION PAPER:

EXPIRING SPECTRUM LICENSES



PRESENTED BY:

omnitouch

Overview

Omnitouch Network Services (ONS) Pty Ltd is an Australian company, focused on designing & building cellular networks in underserved parts of the globe. We have built mobile networks everywhere, from Alaska's icy extremes to South America's remote jungles through our 'Mobile Network as a Service' (MNaaS) product. However, the current regulatory environment around spectrum licensing makes bringing connectivity here into underserved areas within our own home country incredibly difficult.

A critical component of introducing cellular connectivity (Any 'G', from 2G to 5G), into any area is access to spectrum.

Access to Radio Frequency Spectrum is a valuable resource that is key to servicing a community with access to modern mobile telecommunications solutions.

The current Spectrum Licensing scheme used by ACMA for the most popular cellular bands is allocated across a large geographic area and at a significant cost by virtue of spectrum auctions (with licenses granted to the highest bidder).

This approach results in our national carriers holding geographically exhaustive spectrum licenses, which are generally under-utilized in rural & remote parts of Australia. This greatly restricts a competitive communications market, as it hampers the ability of entrant operators to access the radio frequency spectrum which is required to offer services in areas of rural and regional parts of Australia currently un-served.

With the imminent closure of 3G networks across Australia, communities that are currently serviced face the potential for a future downgrade in communications including access to critical emergency calling. While Australia continues to see increased frequency and severity of natural disasters, this imbalance in access to communications is a matter of public safety. The communities most affected by this closure are remote and rural Australians, and backup alternatives such as satellite connection are inaccessible to many due to affordability and technical challenges.

In the 2023 Australian Digital Inclusion Index, key findings show that 28% of Australians face issues around access to communications, with those in remote and rural communities facing the most accessibility challenges. The First Nations digital divide in these areas is the highest in the country, with 45.9% of those in remote Aboriginal communities 'highly excluded' from connections and digital services, lagging well behind those of non-First Nations Australians.

These issues compound to create a future of communications in Australia that directly divides those in cities and towns with easy access to service, from those in rural and regional areas without. Unless there is a change in how spectrum licensing is managed, we can expect to see this communication divide grow further - particularly concerning the digital isolation of First Nation Australians.

We see that allowing access to unused spectrum in underserved rural and remote areas would be a catalyst for positive change. It would drive vastly improved connectivity and communications, while maintaining the current competitive market in areas with an abundance of service options and providers.

Avenues for change: Potential approaches for spectrum licensing

ONS advocates for the 'secondary use' of spectrum in scenarios where the primary Spectrum License holder is not currently utilizing the spectrum. Two potential avenues for spectrum changes are in the form of a use-it-or-share-it (UIOSI) or use-it-or-lose-it (UIOLI) approach to the expiring spectrum licenses.

The introduction of a UIOSI/UIOLI system would mean that holders of spectrum licenses over a given area who are currently utilizing their spectrum holdings to service that area, can continue to serve the area with no change. Critically, however, this new approach would open the door to allow industry to utilize unused spectrum in a given area, and allow a competitive market for other licensees to utilize that previously unused spectrum to provide services.

Spectrum that is held, but not used in an area is currently wasted. This is spectrum that has the potential to carry a Triple Zero call, enable telehealth appointments, allow for access to digital support services, support remote schooling and allow access for those with minimal connection to engage with the world. With a UIOSI/UIOLI approach, this spectrum would be better utilized to support the connectivity and self-sufficiency of these communities, decreasing the digital divide between urban and rural communities.

The Critical Role of 'Place-Based' Networks Driving Competition in regional & remote Australia

We are buoyed to see an increasing number of 'place-based' networks in Australia. In contrast to national networks like that of NBNco or the national MNOs, these

‘place-based’ networks focus on providing connectivity to a specific community, generally one that has been traditionally underserved.

Many of these networks are owned and operated by people from the community that they serve, who have identified a need for better connectivity, along with recognising the life-changing impacts connectivity would have on their communities. These rural communities are proud of their self-sufficiency and self-determination, and this mindset is reflected in having taken the initiative to build these networks themselves.

There are many examples of these networks operating globally. In the US for example, the GSMA lists 51 Mobile Network Operator members. It is important to note that the US approach to spectrum licensing operates in much smaller geographical blocks, meaning spectrum is better utilized across both the mainland and external US states, and allows for a more open competitive market to provide services and connection.

However, these Place-Based Community Networks are the exception and not the rule across Australia.

Case Study

Christmas Island and Norfolk Island are external Australian territories that fall outside of the area-wide spectrum license scheme. This allowed locally owned and operated ‘Place-Based’ operators (‘CiFi’ & ‘Norfone’, respectively) to develop a local mobile network, enabling mobile access to two communities that were previously underserved.

The current Spectrum Licence Scheme used by ACMA, places many of the critical bands used for cellular services out of reach of many geographic areas, even those in areas where the license holders offer no service with the spectrum they have. Under the current framework today, a local council, First Nations group or local industry cannot practically access the spectrum to operate their own mobile infrastructure to fill these blackspots, even if the spectrum sits unutilized by the license holder.

We view this as a missed opportunity for the community. Having spoken with many community groups, First Nations communities and operators of ‘place-based’ networks across Australia, they are largely unsatisfied with their current lack of communications and coverage and would like to improve the service themselves. However, the current spectrum licensing scheme does not accommodate this, as most of these remote communities fall inside of areas currently licensed by a national carrier, rendering any other operator unable to procure the necessary radiocommunications licenses.

Our team has tried to take a market-led approach around this issue by partnering with industry and 'Place-Based' operators, in an attempt to secure subletting/leasing agreements with current primary license holders directly in areas they do not operate. Despite several years of trying, this has yet to lead to positive progress.

Unlocking Spectrum: Frequency Bands

In regional areas, low band spectrum (700Mhz / 850Mhz / 900Mhz) is the best spectrum for delivering long-range cellular services. Midband (1800Mhz / 2100Mhz) provides the ideal mix of coverage and capacity for the combination of low-medium density but widespread rural townships, like those seen all across regional and remote Australia. Frequency bands higher than this lack both the range and penetration to be considered a viable option in rural/remote areas.

The frequency bands considered in this discussion paper are some of the most critical for successfully building cellular networks: both low and mid-band spectrum frequencies.

While other bands capable of delivering WBB / mobile services have been introduced to Australia's Band Plan in recent years, these bands operate at higher frequencies, making them far less suitable to cover the vast landmass of regional/remote Australia, compared to the low/mid band spectrum under consideration at the moment.

Public Investment in Regional Areas & The End-User Experience

Federal and state governments have invested heavily in improving connectivity in rural and regional areas. While this shows an understanding of the needs and the desire to improve the connectivity in these areas, this approach delivers mixed results for a key reason:

Due to the nature of the existing mobile network operations landscape within Australia, issues such as duplication* mean that taxpayers as end-users of these networks see very little improvement or return on investment in infrastructure spending.

**Duplication refers to each network operator building and maintaining their own infrastructure within an area, competing with each other for funding but delivering results only for their own network subscribers.*

In theory, taxpayer funding is granted to provide better coverage and connectivity for remote and rural communities. In practice, however, this means that specific network operators benefit from the funding, enhancing the network experience for their own subscribers, while those also in the area but on other networks receive no improvements in their service.

Taxpayer funding provided for improvement in community connectivity should result in just that: improvement in connectivity for the entire community, not just those hosted with one network provider.

The move towards fostering ‘Neutral Host’ approaches to building cellular networks when awarding grant funding, from state and federal government is a welcome change, as it allows one piece of infrastructure (i.e. a cell tower) to be utilized by multiple operators. This provides a much better return on investment and value for money, ultimately delivering a better user experience for all in the surrounding area.

This approach prevents duplication and allows the entire community to benefit from the coverage provided by the funded infrastructure, not just those served by the particular mobile network operator who had been funded under the scheme.

Access to spectrum underpins any ‘Neutral Host’ cellular build, meaning that for this to be successful, these organizations will first need access to spectrum.

We would like to see a regulatory environment where local governments, First Nations land councils and Place-Based operators, are each able to provide their own mobile coverage solutions if the existing MNOs have failed to adequately service the community. As many of these schemes could be wholly or partly publicly funded, an updated licensing scheme to allow for UIOSI/UIOLI would enable these schemes to be successful.

Proposed ‘Use it or Share It Process’

Below are two potential mechanisms to support the secondary reuse of spectrum.

Proposed ‘Use it or Share It’ Process

- 1) A potential secondary licensee (ie a local 'place-based' network operator) identifies that spectrum is not being utilized inside the bounds of the target area (This could be determined through the use of a calibrated spectrum analyser with GPS or through the use of Government datasets like the National Audit of Mobile Coverage)
- 2) The potential secondary licensee lodges a request for secondary access with ACMA, outlining the boundaries of the target area and supporting evidence
- 3) Respective spectrum holders are alerted and provided a set notice period, during which they can veto the application if they are already committed to utilizing the spectrum in that area in a given specified time period. (This will prevent a secondary license from being granted at a location the primary license holder is actively in the process of building out coverage for)
- 4) If no appeals are made to the application, the Secondary Use License is granted
- 5) The secondary license holder must begin utilizing the spectrum within a given (short) timeframe, or the secondary use license will be forfeited

If, in the future, the primary license holder wishes to utilize their license in the given area, notice would need to be given to the Secondary License Holder via ACMA, who revokes the secondary license, prior to the primary license holder activating services.

Safeguard mechanisms would need to be included to prevent misuse of the scheme, such as:

- Penalties for primary license holders rejecting secondary applications on the grounds of planned coverage but failing to deliver that planned coverage.
- Penalties for primary license holders revoking secondary applications on the grounds of planned coverage that never is delivered.
- A mechanism to prevent speculative secondary use 'squatting' of spectrum without providing services with the spectrum
- Limits to spectrum held under the scheme or limits to the number of active licenses that can be held without delivering services on them (for example an entity may only be allowed X applications in the granted but not delivering service state)

Proposed 'Use it or Lose it' Process

1. Primary licenses are issued with a fixed time to deliver service with the spectrum (immediately if renewing existing licenses)
2. In areas the license holders do not service (proven via measurement or datasets from National Audit of Mobile Coverage) these areas are removed from the existing license footprint and the spectrum is made available under a different license scheme

At this stage, any interested parties can apply for access to the spectrum in the areas no longer managed under the primary license.

In the event the previous primary license holder (who had given up their spectrum) wishes to expand their coverage into the area formerly covered by their license, they can apply like any other interested party.

Conclusion

Access to spectrum plays a critical role in developing cellular networks, however, the current license scheme disproportionately benefits those in urban areas with access to different network provider options and disadvantages those in rural and remote areas with limited access.

28% of Australians face issues around access to communications, with those in rural and remote areas the most disadvantaged. 45.9% of First Nations Australians living in remote areas are “highly excluded” from connections and digital access.

Examples of Place-Based and Community-led Networks worldwide show that when the regulatory environment is amenable, the free market will address issues of connectivity and coverage for themselves.

Spectrum bands that are the most crucial to developing cellular networks are low-band and medium-band frequencies, covering both geographic coverage and end-user capacity.

Current grant funding to improve rural and regional connectivity directly benefits one network provider at a time, and their subscribers only. A change to a ‘Neutral Host’ approach would mean shared access to infrastructure assets for all network operators, resulting in better coverage and connection for the entire surrounding community - not just those on a selected network.

Access to spectrum underpins all of these key points.