



Allocation of 24 - 30 GHz Spectrum: Technical discussion document

December 2025

Disclaimer

Tū Ātea Limited (“Tū Ātea”) affirms its unwavering support for the Māori iwi and hapū in asserting their mana, rangatiratanga and aspirations in the management and allocation of radio spectrum. However, Tū Ātea is not a Crown entity, nor does it discharge the Crown’s obligations under Te Tiriti o Waitangi (the Treaty of Waitangi) or any statutory duties arising therefrom. Nothing in any communication, submission, advocacy or other engagement by Tū Ātea shall be construed as a substitute for the partnership, protection and participation obligations owed by the Crown to Māori under Te Tiriti o Waitangi, the Treaty of Waitangi Act 1975, or any other enactment.

Tū Ātea’s role is to advise, facilitate, support and represent Māori perspectives in telecommunications policy and spectrum governance. In no event shall Tū Ātea’s support or submission be deemed to limit, replace or diminish the Crown’s exclusive responsibility and legal duty to honour and give effect to Te Tiriti o Waitangi, including but not limited to active protection of Māori interests, equitable decision-making, and the duty to consult and act in good faith.

1 Introduction

1. Tū Ātea is a telecommunications company established to manage spectrum allocated to Māori. It was formed following the memorandum of understanding signed in February 2022 by the Government and the Māori Spectrum Working Group to allocate spectrum to Māori. Tū Ātea was set up to oversee the spectrum assigned to Māori through negotiations between the Crown and the Māori Spectrum Working Group.
2. It was created to increase Māori involvement in spectrum-related industries and the technology economy, and to utilise the radio spectrum to support Māori economic, cultural, environmental, and social wellbeing.
3. MBIE is seeking opinions on numerous areas. Our response mainly concentrates on the use of 24.25-27.5GHz.

2 What Tū Ātea sees in the market

4. Tū Ātea agrees with MBIE's assessment that the use cases are still developing. Our research shows:
 - mmWave is unlikely to be a wide-area cellular coverage band and
 - New use cases are likely to be localised.

2.1 The mmWave for traditional cellular use is not cost-effective.

5. Despite mmWave being available for several years (June 2018 in South Korea, November 2018 in the US, and April 2019 in Japan), there has been no large-scale rollout.
6. According to GSA, as of July 2025, 24 operators in 17 countries have launched 5G networks using mmWave spectrum. Most mmWave "deployments" are trials or limited hotspot rollouts rather than widespread coverage.
7. These deployments are mainly concentrated in the US, especially in busy urban areas and stadiums, and are primarily by Verizon. Verizon has traditionally led mmWave deployment mainly in crowded locations and stadiums, while T-Mobile remains the only operator in the US to have fully deployed a SA 5G network¹.
8. The US release of mmWave before the C-Band aided the initial deployment. However, that effectively stopped once C-Band became available.
9. When Verizon gained access to C-band spectrum, it brokered a \$170 million deal for early access to C-band spectrum it won in the 2021 auction, with that investment shifted to C-band.
10. The US experience shows that the economics simply do not support mmWave deployment beyond very limited hotspots: it is not suitable for wide-area coverage spectrum.
11. Failed deployments in South Korea is another example of the economics wide area mmWave deployment (where the regulatory obligations required mmWave deployment in large number of sites). South Korea's operators opted to relinquish their licences rather than proceed with deployment because the business case was unviable.

¹ <https://pbxscience.com/softbank-achieves-breakthrough-in-5g-millimeter-wave-standalone-fwa-technology/>

12. Australia allocated mmWave in April 2021². The network rollout is also limited to capital city CBDs and high-density areas³⁻⁶.

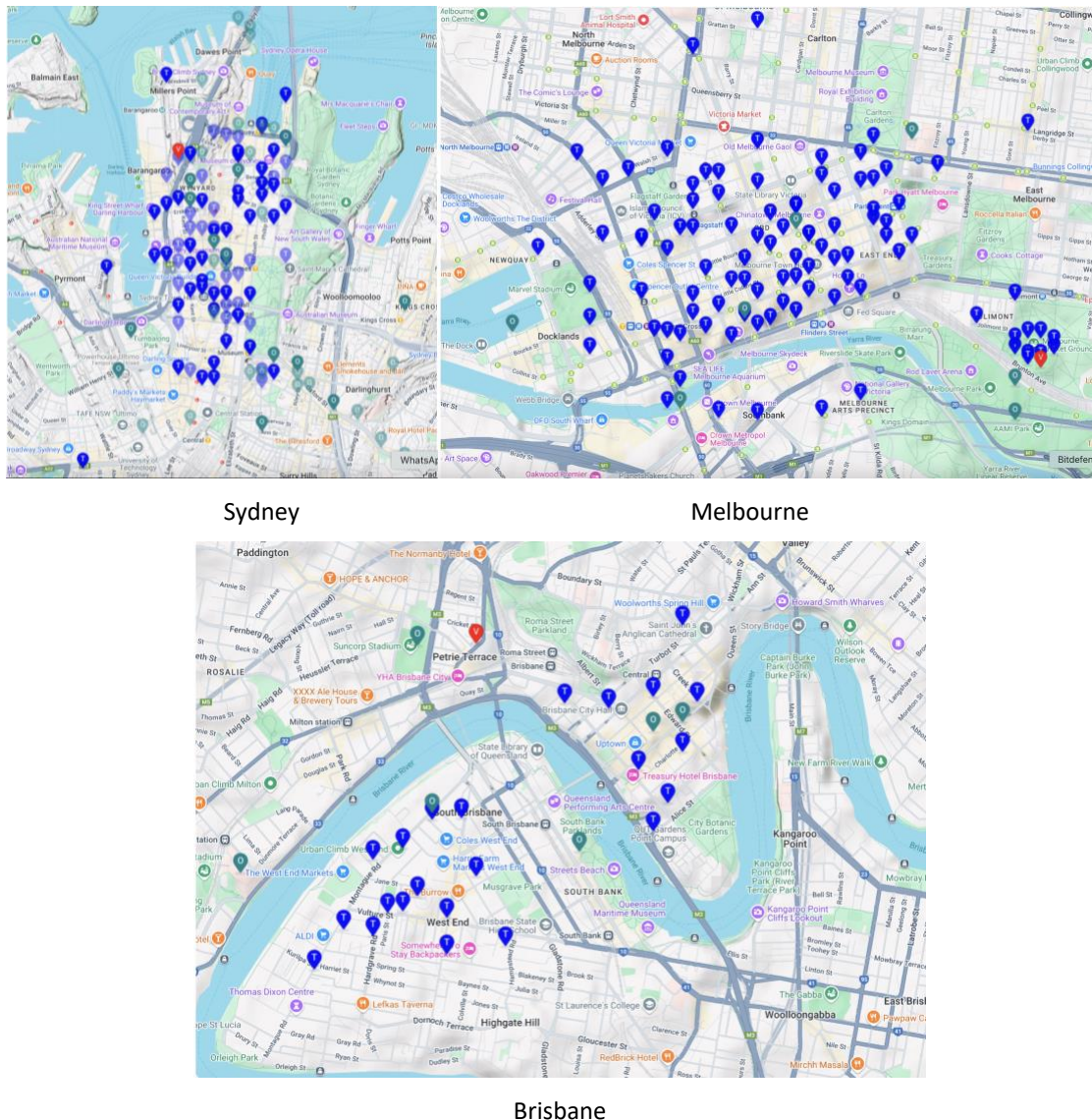


Figure 1: mmWave rollout in Sydney, Melbourne and Brisbane.

13. According to Opensignal data, mmWave usage in urban areas of Australia, Japan, and the U.S. ranges from 0.1% to 0.7% of total usage. If mmWave network traffic remains under 1%, it suggests that mmWave is struggling to gain traction as a mainstream 5G technology.
14. Prices paid at the recent UK auction highlight the low value that mobile operators assign to mmWave.

² <https://www.acma.gov.au/auction-summary-26-ghz-band-2021#:~:text=Background-,Quick%20summary,the%20delivery%20of%205G%20services.>

³ <https://www.whistleout.com.au/MobilePhones/Guides/mmWave-5G-in-Australia-what-you-need-to-know>

⁴ <https://ibb.co/YDtFCZh>

⁵ <https://ibb.co/fHfztNS>

⁶ <https://ibb.co/mHtYhLT>

15. Poor handset support also contributed to the underuse of mmWave. Figure 2 illustrates device support for mmWave in Australia, Japan, and the USA.

Compatible frequencies by smartphone sales country

Vendor name	Product name	5G compatible			Millimeter wave compatible		
		JP	US	AU	JP	US	AU
Apple	iPhone14/Pro/Pro Max/plus	○	○	○	○	○	○
	iPhone13	○	○	○	○	○	○
	iPhone12	○	○	○	○	○	○
	iPhone SE (3rd)	○	○	○	○	○	○
OPPO	OPPO Find X3 Pro	○	○	○	○	○	○
Google	Google Pixel 7 Pro	○	○	○	○	(※)	○
	Google Pixel 7	○	○	○	○	(※)	○
Samsung	Galaxy S22 Ultra	○	○	○	○	○	○
	Galaxy S22	○	○	○	○	○	○
Sharp	AQUOS zero6	○	—	—	○	—	—
	AQUOS sense7	○	—	—	○	—	—
Sony	Xperia Pro	○	○	—	○	○	—
	Xperia 1 IV	○	○	—	○	○	—

○ : compatible — : not clear (There is no sales page on the local website, etc.)
 ※ Millimeter wave compatible models and non-millimeter wave compatible models coexist

(source) Created by Mitsubishi Research Institute from each company's website

Figure 2: Device support for mmWave in Australia, Japan and the USA.

16. In Australia, the mmWave market has experienced device support issues over the past five years⁷. Apple and Samsung have yet to support band n258 in their Asia Pacific phone range. Typically, Apple and Samsung phones account for over 50% of the market share in Australia, and without support from these manufacturers, band n258 is unlikely to gain traction.
17. Overall, device support for mmWave was limited, and this situation has deteriorated further.
- iPhone no longer supports mmWave in the US.
 - Google Pixel's new models do not support mmWave in Australia.
 - Declining device support indicates that device manufacturers do not believe mmWave will be a mass market spectrum.
18. In summary, mobile operators have abandoned mmWave as a traditional cellular band due to economics.

2.2 New use cases are emerging.

19. Mobile operators worldwide are shifting from using mmWave for broad-area coverage to investigating new applications. The transition is still in the early phases, and use cases may differ by region.
20. New use cases are emerging that do not rely on extensive coverage.
- Fixed Wireless Access (FWA) serves as a key use case.
 - Private network (used when high bandwidth is required, and line of sight is available).

⁷ <https://www.whistleout.com.au/MobilePhones/News/Is-mmWave-5G-dud-Australia>

2.2.1 Fixed Wireless Access

USA

21. Verizon has nearly 4.2 million 5G FWA connections⁸. Verizon plans to deploy mmWave radios specifically for FWA services to multiple-dwelling units (MDUs)⁹.
22. T-Mobile has 6.43 million FWA subscribers as of Q4 2024¹⁰.
23. US Cellular has launched 5G FWA mmWave services in several US cities¹¹. It has trialled FWA deployment in Nebraska, achieving downlink speeds of 750 Mbps at over 11 km¹².

Australia

24. Australian NBN completed a \$750 million upgrade incorporating 5G mmWave technology to approximately 2,300 fixed wireless towers. This provides mmWave coverage to around 10,000 premises, expanding the network footprint from 220,000 to 345,000 square kilometres¹³.
25. This NBN expansion extends FWA coverage to homes previously served only by satellite, offering gigabit speeds¹². During live field trials, wholesale download speeds exceeding 1 Gbps and upload speeds over 100 Mbps at approximately 14 kilometres¹³.
26. By January 2025, NBN had more than 70,000 subscribers using FWA broadband services, with testing confirming speeds of up to 2.3 Gbps at a distance of nearly 9 km from the transmitter¹⁴.

2.2.2 Private networks

27. Although private networks mainly operate in the 3.5 GHz band, mmWave is also increasingly utilised for them. Currently, there is limited data; however, information from Mordor Intelligence suggests it could account for over 20% of the US market and is growing. Similarly, private mmWave networks are beginning to establish a presence worldwide¹⁵.
28. The use cases are likely to involve high-bandwidth, line-of-sight applications. Although the mmWave range is a limitation, it can also be an advantage. The short range of mmWave allows for using different frame structures within limited distances.
29. Importantly, regulators worldwide are allocating mmWave for private network use.
30. There are several examples of:
 - Australia issued class licences for both indoor and outdoor use.

⁸ <https://www.sdxcentral.com/analysis/verizon-t-mobile-us-feast-on-5g-fwa-att-remains-alooof/>

⁹ <https://www.fierce-network.com/wireless/millimeter-wave-key-verizons-fwa-das-strategies>

¹⁰ <https://tecknexus.com/t-mobile-verizon-and-att-boost-5g-fwa-speeds-and-subscribers/>

¹¹ <https://www.rcrwireless.com/20230814/5g/5g-fwa-mmwave-a-revenue-game-changer-for-telcos-analyst-angle>

¹² <https://www.nokia.com/broadband-access/fastmile-fwa/busting-the-myths-around-mmwave-fixed-wireless-access-fwa/>

¹³ <https://www.ericsson.com/en/press-releases/2/2025/3/ericsson-nbn-co-and-qualcomm-achieve-5g-mmwave-breakthrough-extending-range-to-14-km-with-gigabit-speeds>

¹⁴ <https://www.rcrwireless.com/20250605/5g/5g-mmwave-noka>

¹⁵ <https://www.mordorintelligence.com/industry-reports/united-states-private-5g-network-market>

- In 2021, Germany's Federal Network Agency (BNetzA) began accepting applications for the 26 GHz frequency band for local private networks. As of November 2024, BNetzA has awarded 24 licences for local use in the 26 GHz band¹⁶.
- Spain has allocated part of the 26 GHz band (n258) for private 5G or local networks in high-demand areas, such as industrial hubs and smart cities, although deployment is still in its early stages¹⁷.
- Portugal, Greece, and Italy have allocated the 26 GHz band for private industrial networks, although commercial use remains limited¹⁷.
- Denmark and Finland have considered using parts of the 26 GHz band to license private networks, restricting licenses to local and regional areas¹⁸.
- The UK initially issued local licences for indoor use in the 24.25-26.5 GHz band for private 5G deployments¹⁷.

2.3 Tū Ātea's proposal

31. Tū Ātea agrees with MBIE that mmWave has not been widely adopted globally.
32. In Tū Ātea's opinion, the economics of mmWave will not succeed in Aotearoa if it does not work in places like the US, South Korea, Japan, and Australia.
33. However, use cases are evolving, and regulators worldwide are recognising this.
34. Therefore, it is crucial to provide opportunities for testing use cases in Aotearoa. This will allow RSM to obtain real data for its decision-making during allocation.
35. While trial licences allow testing of use cases, they are limited in scope as they last only three months and have several restrictions. These restrictions are inappropriate for developing trial use cases.
36. The use cases for mmWave are likely to involve high-bandwidth services, and simple trials cannot adequately test these use cases. It is essential to evaluate them in a proper customer environment with the network fully loaded. This may require carrying commercial traffic.
37. In such a scenario, RSM should provide greater flexibility to test evolving use cases in mmWave.
38. Tū Ātea plans to trial mmWave and is keen to discuss this further with RSM.

3 Brief response to the questions

3.1 Allocation of the 26 GHz band

39. Tū Ātea advocates assigning 26 GHz to mobile systems.
40. Support for any further allocation to EES and SRS should be done after the decision on mobile allocation is made.

¹⁶ <https://digitalregulation.org/spectrum-licensing-local-and-private-networks/>

¹⁷ <https://telecomtrustconsulting.com/5g-understanding-frequency-bandsprivate-networks/>

¹⁸ <https://www.comreg.ie/media/2021/01/ComReg-2107a.pdf>

41. The spectrum amount allocated to the operator will depend on the use cases that develop in this band. Currently, the use cases appear to involve high bandwidth applications. Therefore, Tū Ātea supports allocating up to 800MHz. However, this may change if new use cases emerge.
42. Tū Ātea intends to use equipment that meets the 3GPP requirements.
43. The use cases in the mmWave need to accommodate different needs. Therefore, Tū Ātea prefers not to mandate any frame structure in the range 24.25- 27.5 GHz. This provides greater flexibility to users.
44. Tū Ātea notes that any spectrum allocation decision to Māori has to be discussed with Māori Spectrum Working Group.

3.2 Allocation of the 28 GHz band

45. Tū Ātea agrees with RSM's proposed spectrum uses in the range 27.5- 29.5 GHz.
46. Tū Ātea agrees with RSM's geographically driven sharing between Mobile Services and FSS in the 27.5-28.35GHz range. These are incompatible services (Mobile and ESIMS), and geographical separation is the only option available if they are to share the same spectrum.