

International Benchmarking: New Zealand

700 MHz band¹

History of the band

New Zealand, like many countries, undertook a digital dividend of the 700 MHz band (703-748/758-803 MHz) to facilitate the transition from analogue to digital terrestrial television broadcasting.

In 2014, the Ministry of Business, Innovation and Employment (MBIE) auctioned nine 2x5 MHz paired spectrum blocks for 4G network services. All lots were won by 3 bidders for a gross auction revenue of \$270 million NZD.

850/900 MHz²

History of the band

In 1990, MBIE allocated national licences for cellular use to BellSouth and Telecom for \$36.4 million NZD.

In 1993, MBIE allocated a national licence for cellular use to Telecom Australia Ltd (now Telstra) for \$13 million NZD.

Pre-1995, MBIE allocated the 850 MHz and 900 MHz bands via tender for mixed services including cellular services.

1700 MHz – 2 GHz

History of the band³

In 2000, MBIE completed an initial auction for spectrum between 1.7 GHz and 2.3 GHz for a gross revenue of \$133.6 million NZD.

In 2002, MBIE completed an auction of multiple bands which includes the 1.7 GHz band. The one available lot in the band went unsold. The lot was sold in a closed tender process in December 2002/January 2003 for \$31,000 NZD.

In 2021, MBIE partially renewed managements rights in the 1800 MHz and 2.1 GHz band for the price of \$165.6 million NZD to 2degrees, Hautaki, Spark, and Vodafone for 3G and 4G services. MBIE reserved 20 MHz each in the 1800 MHz and 2.1 GHz bands for other uses, such as Emergency Services.

¹ [Auction 12, Cellular management rights in the 700 MHz band for LTE \(4G\) cellular networks; Kiwi mobile operators acquire 700 MHz spectrum](#)

² [Completed spectrum rights tenders 1989 - 1995](#)

³ [Auction 3, Management rights and spectrum licences between 1.71 GHz and 2.3 GHz; Management right for telecommunications purposes \(1.7 GHz\)](#)

2.3 GHZ/2.5 GHz

History of the band⁴

In November 2006, New Zealand Cabinet decided to reconfigure 2.3 GHz spectrum rights and allocate new rights via auction. In April 2007, MBIE commenced consultation and upon feedback from stakeholders on early investment certainty for wireless access services, Cabinet decided to jointly auction the 2.3 GHz and 2.5 GHz bands.

In December 2007, MBIE completed an initial auction of both the 2.3 GHz and 2.5 GHz bands for cellular use. 6 bidders won 8 lots for a gross revenue of \$4.4 million NZD.

In addition to the 2.3/2.5 GHz auction, MBIE reserved 45 MHz for a “Managed Spectrum Park” which was designed to facilitate local/regional wireless spectrum sharing and encourage self-managed and cooperative approaches to the allocation and use of spectrum.

MBIE also made 2 further lots available and reserved a nationwide lot of 25 MHz which was designated for Māori use. The Minister of Māori Affairs offered this lot to Hautaki Ltd.

3500 MHz band

History of the band⁵

In 2002, MBIE allocated 9 management rights lots of 10 MHz in the 3.5 GHz band for wireless local loop alongside lots for the 900 MHz (for cellular), 1700 MHz band, and 24 GHz band for telecommunication purposes. All lots in the 3.5 GHz band were sold for a revenue of \$6.16 million NZD.

From 2006–2010, MBIE allocated local area management rights for the implementation of local and regional wireless broadband access services. All available lots were sold for a gross revenue of \$7.7 million NZD.

In 2020, MBIE directly allocated early access to the band to Dense Air, Spark and 2degrees for \$2 million NZD.

In 2023, MBIE announced agreements of 80 MHz each with three major network operators for long-term rights to the band for the cost of \$24 million NZD for the purpose of accelerating the provision of 5G services. The Interim Māori Spectrum Commission received 100 MHz of spectrum to manage on behalf of the Māori population.

3.3 GHz regional broadband licences⁶

In May 2023, MBIE completed an initial auction for 6-month exclusive licensing in for non-national/regional broadband use, including private networks. 134 lots of 20 MHz were auctioned on [Trade Me](#) for an approximate revenue of \$171,807 NZD. Following the auction, MBIE

⁴ [Auction 9, Management rights for cellular use at 2.3 & 2.5 GHz](#)

⁵ [Auction 5, Management rights for cellular, Wireless Local Loop and telecommunication purposes; Auction 8, 3.5 GHz local area licences; Preparing for 5G in New Zealand](#)

⁶ [Regional broadband licences; Auction 26.](#)

opened a first-in-time process for available licences in May 2024, applying an annual licence fee and tax rate for licensees.

Market Environment

Current/Future trends⁷

Satellites⁸

MBIE noted that the last decade has seen significant investment and the private sector in the space industry to stimulate development of new satellite technologies, such as Low-Earth Orbit (LEO) satellites, mega satellite constellations, low-latency satellite networks, short duration satellites and further development of existing satellite networks. This involved increased delivery in satellite broadband services for consumers and emerging use cases like Non-Terrestrial Networks (NTN), Direct to Device, IoT and sensor networks.

MBIE observed that New Zealand's Space Economy is 'New Space Driven', characterised by a mix of start-up and well-established, privately funded space companies that service both government and non-government customers. RSM indicated that it will monitor developments in satellite technology and the use of new satellite bands and market structures, further noting its potential to bolster connectivity. In 2018-2019, the economic contribution of NZ's space economy was \$1.69 billion. A Deloitte report observed that the 'New Space' era was driven by unprecedented competition and growth fostered by a changing market structure and commercial use of space infrastructure, increase in private investment representing approximately 85% globally through venture capital, and increasing public demand for data. New Zealand was predicted to occupy a market share of 0.21% of the global space economy in 2018-2019.

RSM is considering arrangements for the 1980-2010 MHz/2170-2200 MHz S band and the 40/50 GHz QV band, and progress work on future use of the 24-30 GHz frequency band.

Cellular Mobile – 5G & Connectivity

In its Spectrum Outlook report, MBIE noted that there is a significant uptake and growth of fixed wireless and mobile broadband and also observed that various wireless technologies such as 5G and 6G are likely to demonstrate growth in parallel to traditional service providers and network operators.

In the most recent Commerce Commission's Telecommunications Monitoring Report⁹, the Commission observed that 87% of New Zealanders (1.8 million homes and business) were connected to the Ultra Fast Broadband Network, approximately 291,000 wireless broadband connections with 99% of those being 4G and the remainder being 5G networks in urban areas. In rural areas, Crown Infrastructure Partners claim that 100% of New Zealanders have access to improved (84,000 homes and businesses), 105% of state highways (1,471km) have mobile coverage, and 67% (46,600) of homes and businesses have received broadband capacity

⁷ [New Zealand Spectrum Outlook 2023 to 2027](#).

⁸ *ibid*; [Deloitte NZ Space Economy Report](#).

⁹ [2022-Annual-Telecommunications-Monitoring-Report-15-June-2023](#).

upgrades.¹⁰ Crown Infrastructure Partners also reported to have completed installing the UFB network in 2022.

To address demand, MBIE notes that the key challenges are making spectrum available in key bands to accommodate wireless applications and that spectrum allocations have formed the basis formed the purpose of developing mobile data networks including for 5G and future 6G. MBIE also indicated a focus on enhancing coverage and connectivity such as addressing capacity constraints for future growth and supporting the capacity for different use cases to emerge. Since then, MBIE has allocated mid-band spectrum (3.5 GHz, 3.3 GHz) for use by NZ's major network operators and for localised use cases.¹¹

Internet of Things/Machine to Machine Learning (IoT/M2M)

MBIE noted that the global growth in connectivity has encouraged development in wireless applications for enabling automation. In a New Zealand context, MBIE noted that IoT and M2M wireless applications operate in either generally authorised (unlicensed) or licensed spectrum, including mobile licenced spectrum. IoT cases that are currently appearing in industry and domestically are used for gathering data, monitoring and report (e.g. smart meters). MBIE indicated that it intends to monitor business models and use cases internationally, noting business models are integrating IoT with private networks and spectrum sharing to provide customised services that use spectrum efficiently and monitor the need for spectrum for critical infrastructure.

Private Networks and Industry Verticals

MBIE noted that there is also increased interest in private wireless networks for bespoke applications for industry sectors like manufacturing, agriculture and logistics (usually referred to as verticals).

MBIE indicated that it would consider international developments and its translation into New Zealand's regulatory framework, specifically developments in dynamic access mechanisms/spectrum sharing and the related issue of licensing.

In 2023 and 2024, MBIE has allocated spectrum licences the 3.30-3.34 GHz band for non-national use cases including regional broadband connectivity and industry verticals.

Māori-reserved spectrum¹²

New Zealand, like Canada, has recently introduced spectrum set-asides for its First Peoples. In 2022, the New Zealand Cabinet entered into a Memorandum of Understanding with the Māori Spectrum Working Group (MSWG) to address Māori interests in spectrum.

¹⁰ [CIP-Connectivity-Quarterly-Report-March-2024](#).

¹¹ [Preparing for 5G in New Zealand | Radio Spectrum Management New Zealand](#).

¹² [Memorandum of Understanding - Māori Spectrum agreement; Wai776 final](#);

MSWG considered that spectrum is a means to achieve rangatiratanga (sovereignty) and broad regional, economic, cultural, social and environmental outcomes enabled by greater Māori participation in digital technologies.

MSWG also considered spectrum to be taonga (sacred) per *Ko te tuarua (Article 2)* in Te Tiriti o Waitangi (the Treaty) which protects Māori sovereignty and the right to self-determination in relation to their cultural practices and protection of land, water and resources. This was previously affirmed by the Waitangi Tribunal¹³ for the Wai 776 claim.

In 1999, the Wai 776 claim was brought to the tribunal to seek remedy in light of the Government's upcoming auction of spectrum covering the 2 GHz band. Specifically, the claimant alleged that the Crown breached treaty principles by auctioning off spectrum without Māori consultation and agreement on the allocation of control over a resource, whether the Māori had any use of the spectrum for their own economic benefit, and whether Māori regarded spectrum as useful for the fulfilment of the Crown's obligations to promote and protect Māori and Māori culture.¹⁴ The Tribunal addressed two limbs of the claim:

1. That Māori have a right to a fair and equitable share in the radio spectrum resource
2. That Māori have a right to a fair and equitable share in the spectrum, especially where the Crown has an obligation to promote and protect Māori language and culture.

The claimant sought recommendations that affirmed:

- That Māori have a right to participate in spectrum management and benefit from its management,
- That the Crown breached its treaty obligations by seeking a monopoly over a resource in its spectrum activities without agreement or consultation with Māori.
- That the Radiocommunications Act 1989 breaches treaty in so far that it allocates management rights without consultation with Māori
- The Crown should discontinue current spectrum management policy until negotiated solution, strategic framework, funding and other support for Māori, and compensation from previous allocations were reached.

The Tribunal, in the context of preserving Te reo Māori (the Māori language), had previously found that article 2 of the Treaty covers both tangible and intangible things and the Treaty promoted a partnership in the development of the country and a sharing of all resources. In the Tribunal's 1990 *Report on Claims Concerning the Allocation of Radio Frequencies*, found that neither Treaty partner was aware of the existence of the radio spectrum at the time, the radio spectrum is a taonga for the whole of mankind in which neither Treaty partner can claim monopoly of the resource, management of the spectrum is achieved in partnership and effective

¹³ The Waitangi Tribunal is a permanent commission of inquiry, established in the 1970s to investigate Maori claims of Crown treaty breaches and make practical recommendations to the Government on the claims in relation to applying and adhering to treaty principles.

¹⁴ In relation to the protection of Maori culture, the claimant alleged that the Government had wrongly limited itself to a consideration of its obligations to protect language only rather than considering wider issues (and how spectrum might be used to resolve that).

consultation with Māori, and there is a hierarchy of interests where the Crown's obligation or duty to control and manage resources in conservation and the public interest is first, tribal interests are second, and commercial or recreational interests follow.

Upon consideration, the Tribunal found that the claimant would be prejudiced if the Crown were to proceed with the proposed auction of 2GHz frequencies without previously reserving for Māori a fair and equitable portion of those frequencies. It recommended that the Crown suspend the auction of the 2 GHz band and commence negotiations with a national Māori body. It also recommended the establishment of a trust to manage a national claim for spectrum. It did not support the claim that the Crown compensate Māori for their share of revenue acquired from the sale of previous spectrum licences.

In a dissenting opinion, one of the Tribunal members viewed that elements of the claim for Māori being entitled to a fair and equitable share in the radio spectrum resource were ambiguous and potentially place no limitations on the scope of such a claim.

The Crown, at present, does not accept these findings and that radio spectrum is a taonga which it outlined in the MOU. However, Māori and the Crown committed to several actions to address the Māori's interest in spectrum:

- The Government's planning for the 3.5 GHz band included the allocation of spectrum to Māori for the purpose of building capability and expertise in spectrum-related activities for Māori.
- The formation of a joint working group to develop options for an enduring agreement to address Māori interests in spectrum.
- Dedicated funding to Te Puni Kōkiri and the Ka Hao fund (for Māori digital technology development).
- The establishment of a new Maori Spectrum Entity (MSE), who will be allocated 20% of future Commercial Spectrum allocations at no cost.

The Maori spectrum entity has been established, trading as Tū Ātea. In December 2023, the entity acquired 100% of the Broadtech Group (a telecommunication and broadcasting services provider), which grants the entity access to established nationwide network infrastructure, technical capabilities, and skilled engineers.¹⁵

Independent views on the MOU indicated concerns with loss in economic efficiency and competitive value of spectrum set aside for MSE use. It specifically indicates efficiency losses in the spectrum in the instance where a spectrum holder may not be incentivised to utilise spectrum it acquired for no cost. Additionally, there was the view that spectrum as a set-aside have distortionary effects on the availability and value of spectrum which may lead to unused spectrum. However, there is a view that set-asides in the context of the MOU, preference a polycentric approach to spectrum management which indicates

MNOs/market structure

¹⁵ [Tū Ātea to put Māori spectrum assets to work with Broadtech acquisition](#)

Secondary Market

Appendix A: Current assignments in frequency bands

Table 1: Current management rights across all ESL-related bands

Licence winners	Frequency	# licences	Total holdings (MHz)
SPARK NEW ZEALAND TRADING LIMITED	703-723 758-778 825.015-840 870.015-885 1740-1760 1835-1855 1940-1955 2130-2145 2300-2370 2535-2555 2655-2675 3620-3700	12	350 MHz
ONE NEW ZEALAND GROUP LIMITED	723-738 778-793 889.8-915 994.8-960 1760-1785 1855-1880 1920-1940 2110-2130 2500-2535 2555-2575 2620-2655	13	340 MHz
TWO DEGREES NETWORKS LIMITED	738-748 793-803 890-899.8 935-944.8 1710-1730 1805-1825 3540-3620	7	160 MHz
TŪ ĀTEA LIMITED	1970-1980 2160-2170 2370-2395 3700-3800	4	145 MHz
HAUTAKI LIMITED	1955-1970 2145-2160	2	35 MHz