

NOTICE OF LODGMENT
AUSTRALIAN COMPETITION TRIBUNAL

This document was lodged electronically in the AUSTRALIAN COMPETITION TRIBUNAL and has been accepted for lodgment pursuant to the Practice Direction dated 3 April 2019. Filing details follow and important additional information about these are set out below.

Lodgment and Details

Document Lodged: Joint Document of Factual Findings

File Number: ACT 1 of 2022

File Title: APPLICATIONS BY TELSTRA CORPORATION LIMITED AND
TPG TELECOM LIMITED

Registry: VICTORIA – AUSTRALIAN COMPETITION TRIBUNAL



REGISTRAR

Dated: 11/03/2023 3:27 PM

Important information

This Notice has been inserted as the first page of the document which has been accepted for electronic filing. It is now taken to be part of that document for the purposes of the proceeding in the Tribunal and contains important information for all parties to that proceeding. It must be included in the document served on each of those parties.



COMMONWEALTH OF AUSTRALIA

Competition and Consumer Act 2010 (Cth)

IN THE AUSTRALIAN COMPETITION TRIBUNAL

File No: ACT 1 of 2022

Re: Applications by Telstra Corporation Limited and TPG Telecom Limited for review of the determination of the Australian Competition and Consumer Commission dated the 21st day of December 2022 (file no. MA1000021).

Applicants: Telstra Corporation Limited and TPG Telecom Limited

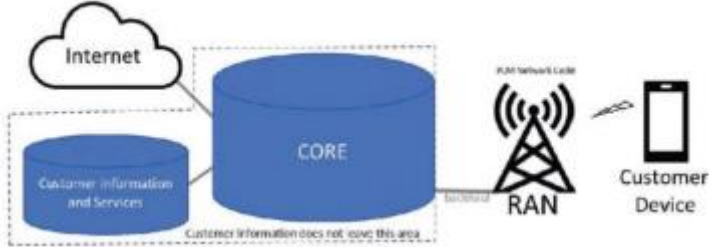
JOINT DOCUMENT IDENTIFYING ALL FINDINGS ON FACTUAL MATTERS SET OUT IN THE ACCC'S REASONS FOR DETERMINATION THAT ARE NOT CONTESTED BY THE PARTIES ON THE REVIEW

11 March 2023

(Direction 11 in the Directions made on 31 January 2023)

The document contains confidential information which is indicated as follows:
[Confidential to Telstra] [...] for Telstra Corporation Limited and its related bodies corporate
[Confidential to TPG] [...] for TPG Telecom Limited and its related bodies corporate
[Confidential to the Applicants] [...] for Telstra Corporation Limited and its related bodies corporate and TPG Telecom Limited and its related bodies corporate
[Confidential to Optus] [...] for Singtel Optus Pty Limited and its related bodies corporate
[Confidential to TPG and Optus] [...] for TPG Telecom Limited and its related bodies corporate and for Singtel Optus Pty Limited and its related bodies corporate

ACCC Reasons ref	Findings of fact not contested (extract)
[1.2]	Telstra and TPG (the Applicants) have entered into 3 interrelated agreements to implement a MOCN NaaS commercial arrangement: the MOCN Service Agreement, the Spectrum Authorisation Agreement, and the Mobile Site Transition Agreement (together, the Proposed Transaction).
[1.3]	The arrangement involves TPG authorising Telstra to use spectrum currently held by TPG and Telstra providing TPG with active mobile network infrastructure services in certain regional and urban fringe areas (an area in which approximately 17% of Australians reside) (the Regional Coverage Zone). TPG will use the MOCN services for its 4G and 5G coverage in the Regional Coverage Zone as part of its retail and wholesale services. TPG will also transfer up to 169 of its existing mobile sites (which refers to active equipment which is located on third party towers, poles or rooftops) in the Regional Coverage Zone to Telstra and intends to decommission the remainder.
[1.4]	The initial term of the MOCN Service Agreement is 10 years and TPG has 2 options to extend the agreement by 5 years, and an option for a transition period of 3 years. The Spectrum Authorisation Agreement may continue after expiry or termination of the MOCN Service Agreement unless terminated by Telstra or TPG.
[1.5]	Telstra and TPG will continue to operate their own mobile core networks in the Regional Coverage Zone (in the 81.4% to 98.8% area of population coverage). They will also continue to operate their own networks in metropolitan areas where around 81.4% of Australia's population resides. The agreement will not enable TPG to use Telstra's network to extend its coverage into remote areas beyond the Regional Coverage Zone. Telstra will remain as the only provider with coverage in those areas servicing an additional 0.7% (up to 99.5%) of the population Very remote areas, in which 0.5% of the population resides, have no mobile coverage.
[1.12]	on 1 November 2022 the ACCC received 2 draft undertakings from the Applicants in response to the issues raised in the ACCC's Statement of Preliminary Views (of 30 September 2022) regarding the proposed duration of the Proposed Transaction.
[5.2]	A mobile network uses spectrum to deliver mobile services such as voice, SMS and mobile data to end-user devices.
[5.3]	Mobile network operators compete at both the retail and wholesale level, with their retail brands competing for consumer and enterprise customers, and their wholesale arms competing in the provision of wholesale services to MVNOs and other telecommunications providers.

ACCC Reasons ref	Findings of fact not contested (extract)
[5.4]	A mobile network typically has a number of primary components used to deliver these services: the radio access network, transmission networks, the core network, and spectrum.
Figure 2	<p data-bbox="474 304 1081 339"><i>Figure 2: Major components of a mobile network</i></p> 
[5.5]	The radio access network consists of base stations (mounted on mobile towers or located at cell sites) that use spectrum to connect end-user devices to the network via radio link. A base station provides mobile coverage to an immediate geographic area called a cell.
[5.5]	Importantly, mobile devices will maintain connectivity with the network as the end-user's device moves between cells. This capability is known as inter-cell handover.
[5.6]	In turn, transmission networks connect these base stations to the rest of the network, and the core network. These transmission links can be wireless (microwave, satellite), but are more commonly connected by fibre link. Transmission between base stations and the rest of the network is also known as backhaul. Backhaul is an important component of network quality. A mobile network needs sufficient backhaul capacity to carry traffic across its network.
[5.7]	The core network manages voice, SMS, and data traffic, connects and manages different parts of the network, and handles functions like billing and user management.
[5.8]	The core network is also where operators' networks connect to other networks, including the internet. MNOs connect to other operators' networks at points of interconnection between their respective core networks.
[5.9]	Spectrum is the medium by which signals are carried between the end-user device and the radio access network, and ultimately the MNO's wider network and beyond. Spectrum is discussed in further detail below.

ACCC Reasons ref	Findings of fact not contested (extract)
[5.10]	Telstra Corporation Limited (Telstra) is Australia’s largest telecommunications company, and Australia’s MNO by number of subscribers and by the size of its network. Telstra’s mobile network includes more than 11,000 mobile base stations nationally, and covers over 2.6 million square kilometres. Telstra’s network covers 99.5% of the population.
[5.11]	Telstra currently operates approximately 3,700 mobile base stations within the Regional Coverage Zone.
[5.12]	TPG Telecom Limited (TPG) is Australia's third-largest MNO by number of subscribers.
[5.13]	TPG operates more than 5,600 mobile base stations nationally, and currently operates 749 mobile base stations in the Regional Coverage Zone. TPG’s current network covers 96% of the population and is extended under a roaming agreement with Optus.
[5.14]	Singtel Optus Pty Limited (Optus) is Australia’s second-largest MNO. Optus is not listed in Australia. Optus has the second-largest number of mobile subscribers, and its network covers 98.5% of the population. Optus operates around 2,500 mobile base stations in the Regional Coverage Zone.
[5.15]	MVNOs are providers who acquire wholesale mobile services from the MNOs (Telstra, Optus, and TPG) and provide retail mobile services under their own brands. MVNOs operate under a range of business models. Some MVNOs operate their own marketing and customer support, whereas others resell an entire ‘white-label’ service from an MNO.
[5.16]	The MNOs also operate ‘sub-brands’ that perform a similar role to MVNOs, offering retail services to more value-conscious consumers.
[5.16]	These sub-brands also include formerly independent MVNOs that the MNOs have acquired, such as Amaysim which was acquired by Optus in 2021.
[5.19]	Spectrum is the medium by which an end-user’s device is connected to a base station on a mobile network.
[5.20]	The legal right to operate radiocommunications devices on specific frequencies and over specific geographic areas is conferred by licence. The Australian Communications and Media Authority (ACMA) manages Australia’s spectrum and administers its planning and licensing. Spectrum may be licensed under a range of licensing regimes:
[5.20]	<i>Spectrum licences</i> confer to the licensee the exclusive right to operate radiocommunications equipment within the listed frequencies and geographic area. Most spectrum licences in Australia are owned by the nationwide MNOs and NBN Co Limited (NBN Co). Spectrum licences are tradeable assets, subject to conditions imposed by the ACMA. Licensees may also

ACCC Reasons ref	Findings of fact not contested (extract)
	authorise other people to operate equipment under their licence. The trade and authorisation of spectrum licences is outlined below at <i>Secondary market</i> for spectrum.
[5.20]	<i>Apparatus licences</i> allow the licensee to operate certain equipment at a named place or area. Apparatus licences are also used by MNOs in support of their mobile networks.
[5.20]	<i>Class licences</i> authorise the operation of common radio equipment on shared frequencies. This typically includes end-user equipment such as mobile handsets or Wi-Fi devices. Licensees do not need to apply for a licence or pay a fee to use spectrum covered by a class licence.
[5.21]	The purpose of spectrum planning is to enable the use of it by way of managing interference between competing users and uses of the spectrum. Without spectrum planning, interference between devices would render the spectrum less useful for all users.
[5.23]	Spectrum is measured in megahertz (MHz) or gigahertz (GHz) and divided into bands based on frequency.
[5.24]	<p>For the purposes of the Proposed Transaction, these Reasons for Determination refer to the 700 MHz, 800 MHz, 2 GHz, and 3.4 GHz bands. These are the names for the bands as they appear on the ACMA's Register of Radiocommunications Licences. The Application and a number of other submissions refer to some of these bands by different names. Other names for these bands include:</p> <ul style="list-style-type: none"> • 800 MHz: 850 MHz • 2 GHz: 2100 MHz • 3.4 GHz: 3400 MHz, 3500 MHz, 3600 MHz, 3.5 GHz, 3.6 GHz
[5.25]	Spectrum bands can be further categorised into 'low-band', 'mid-band', and 'high-band', based on their frequency and typical role within a mobile network. While the boundaries of these categories can vary, typical usage in the Australian context is set out below.
[5.26]	Low-band spectrum is any spectrum below 1 GHz, and in Australia includes 700 MHz, 800 MHz, the 850 MHz Expansion band, and 900 MHz bands. Low-band spectrum has favourable propagation characteristics for wide coverage area networks, travelling comparatively greater distances and providing better service indoors than higher frequency bands.

ACCC Reasons ref	Findings of fact not contested (extract)
[5.27]	Low-band spectrum is well suited to overcoming natural and man-made barriers to signal propagation, such as hills and buildings, as well as foliage and other obstacles.
[5.28]	Mid-band spectrum is any spectrum between 1 GHz and 6 GHz, and includes the 1800 MHz, 2 GHz, 2.3 GHz, 2.5 GHz, and 3.4 GHz bands.
[5.29]	Mid-band spectrum is distinguished by the comparatively greater amount available, allowing for larger bandwidths and more capacity to be provided in the network.
[5.30]	High-band spectrum is any spectrum above 6 GHz, and includes spectrum at very high frequencies such as the 26 GHz band. High-band spectrum makes very large bandwidths available but offers relatively poor propagation
[5.31]	In addition to mobile services, high-band spectrum is also used by the satellite industry to provide satellite services where the end-user device (such as a handset or satellite dish) has line of sight to the satellite overhead, and terrestrial propagation issues are not a concern.
[5.32]	No high-band spectrum is included in the Proposed Transaction.
[5.34]	Access to spectrum is a necessity for MNOs.
[5.36]	Operators may acquire spectrum licences from the ACMA by application or at auction, or in the secondary market from other licensees.
[5.37]	The ACMA may allocate spectrum licences through an auction, tender, or by a predetermined or negotiated price. In practice spectrum licences are generally allocated via auction.
[5.38]	A spectrum auction is the final step in the ACMA's process of allocating suitable spectrum to licensees. The <i>Radiocommunications Act 1992 (Cth)</i> (Radiocommunications Act) governs the ACMA's process of spectrum band planning and allocation. The object of the Radiocommunications Act is 'to promote the long-term public interest derived from the use of the spectrum'.
[5.40]	The ACMA may allocate nationwide licences or allocate licences for discrete regions of Australia. The 700 MHz band was auctioned as nationwide licences. Other bands such as 800 MHz, 2 GHz, and 3.4 GHz have been auctioned as subnational licences. The ACMA takes likely demand for the spectrum into account when designing geographic lots.

ACCC Reasons ref	Findings of fact not contested (extract)
[5.41]	When allocating spectrum licences using a price-based mechanism, including by auction, the ACMA is required to seek advice from the ACCC on the need for allocation limits.
[5.41]	Allocation limits imposed by the ACMA restrict the amount of spectrum any person may acquire at the auction,
[5.42]	The ACCC, in making its assessment of the need for allocation limits, uses the long-term interests of end-users (LTIE) test. The ACCC's assessment of the need for allocation limits is forward-looking, and is provided to the ACMA prior to the ACMA making a determination on the procedures to be applied when allocating spectrum licences. The ACMA is the decision-maker for whether any allocation limits should be imposed, and the nature of any such limits.
[5.43]	Importantly, allocation limits apply only to the auction itself, and do not restrict the secondary trading or authorisation of licences subsequent to the auction. Secondary trading or authorisation of spectrum licences is taken to be an acquisition for the purposes of section 50 of the Act,
[5.43]	Allocation limits are a specific tool used in the context of an auction, and are not a broad 'spectrum cap' or limit on the total spectrum a person may use.
[5.44]	The ACMA may issue spectrum licences with a licence term of up to 20 (previously 15) years.
[5.45]	The ACMA also has the power to renew spectrum licences upon expiry without undertaking an auction or other price-based allocation method. The circumstances under which the ACMA may re-issue a spectrum licence differ depending on when the licence was issued and the terms included in the licence.
[5.46]	The spectrum bands relevant to the Proposed Transaction are all due to expire within the first ten-year term of the agreement. The ACMA has indicated that it will begin consideration of the renewal process for the first of these bands to expire (800 MHz) in 2023.
[5.47]	The ACMA has previously re-issued certain spectrum licences upon expiry, including in the 800 MHz, 1800 MHz, 2 GHz, 2.3 GHz, and 3.4 GHz bands. These spectrum bands are generally issued for a period of 15 years and to date, they have only expired once since their issue as spectrum licences. Upon expiry, spectrum in these bands was not put back to market but instead re-issued to the incumbent licensees for a further 15 years.
[5.50] Table 1	The spectrum licences relevant to the Proposed Transaction and their expiry is set out in Table 1 below. <i>Table 1: Spectrum bands relevant to the Proposed Transaction</i>

ACCC Reasons ref Findings of fact not contested (extract)																
	<table border="1"> <thead> <tr> <th>Spectrum band</th> <th>Expiry date</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>700 MHz</td> <td>31 December 2029</td> <td></td> </tr> <tr> <td>800 MHz</td> <td>17 June 2028</td> <td>Previously re-issued in 2015</td> </tr> <tr> <td>2 GHz</td> <td>11 October 2032</td> <td>Previously re-issued in 2017</td> </tr> <tr> <td>3.4 GHz</td> <td>13 December 2030</td> <td>See note⁸³</td> </tr> </tbody> </table> <p>Source: ACMA, Reissue of spectrum licences, accessed 10 November 2022.</p>	Spectrum band	Expiry date	Notes	700 MHz	31 December 2029		800 MHz	17 June 2028	Previously re-issued in 2015	2 GHz	11 October 2032	Previously re-issued in 2017	3.4 GHz	13 December 2030	See note ⁸³
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[5.52]	spectrum licences are tradeable assets and may be traded and sold to other parties. Licensees are also permitted to trade parts of their licences.															
[5.53]	The subdivision of spectrum licences is subject to rules put in place by the ACMA, but generally allows for the disaggregation (or aggregation) of licences either by frequency or geographic area.															
[5.54]	Licensees may also authorise other parties to operate radiocommunications devices under their licence. This is known as ‘third-party authorisation’. The Proposed Transaction is a third-party authorisation and involves TPG authorising Telstra to operate equipment on TPG’s licences for the purpose of implementing the network sharing arrangement.															
[5.63]	TPG and Telstra also have a separate spectrum access agreement in the 3.4 GHz band, with Telstra operating equipment at greater bandwidths than are licensed to them in selected capital cities.															
[5.64]	The national MNOs are currently operating networks that include 3 generations of mobile technology: 3G, 4G, and 5G. These technology generations are generally defined and standardised at an international level, and require support both within the mobile network and on an end-user’s device.															
[5.65]	Each subsequent technology generation has brought increased bandwidth and speeds and improved the capabilities of the network. 5G is the newest technology generation to be deployed, and all 3 MNOs are rolling out their 5G networks currently.															
[5.66]	5G technology makes more efficient use of spectrum, delivers faster speeds and provides better reliability and lower latency as compared to 4G technology. This technological development enables network operators to offer improved services, both fixed and mobile.															

ACCC Reasons ref	Findings of fact not contested (extract)
[5.67]	Each subsequent technology generation uses spectrum more efficiently, enabling faster speeds or more capacity to be provided using the same parcel of licensed spectrum. A given allotment of low-band spectrum may be used to carry more traffic or cater to more end-user devices simultaneously on a 5G network than on a 4G or 3G network.
[5.68]	MNOs are incentivised to upgrade their networks in order to make use of this more efficient technology and meet evolving consumer needs, but doing so requires large upfront investments. MNOs must also balance repurposing ('re-farming') their spectrum holdings for newer technology while continuing to operate the older technology simultaneously.
[5.70]	5G technology is designed to be more flexible with the spectrum it is able to use, with more and more equipment expected to become available supporting a wider range of spectrum bands. Currently, the MNOs are making heavy use of the 3.4 GHz band for their 5G networks, with some use of low-band spectrum in the 700 MHz (TPG), 800 MHz (Telstra) and 900 MHz (Optus) bands.
[5.71]	When rolling out new technology generations, MNOs reuse or incrementally add to their existing physical infrastructure. For example, an MNO might add a 5G radio at an existing site where it already operates 4G and 3G equipment.
[5.72]	The speed at which it is able to do so is therefore determined by spectral and capital availability, but also the availability of suitable sites and sufficient existing backhaul capacity.
[5.73]	MNOs have historically shared aspects of their networks. Infrastructure sharing in mobile networks can be broadly classified as either 'active' sharing or 'passive' sharing.
[5.74]	Passive infrastructure sharing may involve the sharing of non-electronic infrastructure such as cell sites, towers, and buildings, but does not include the sharing of electronic equipment capable of processing or converting telecommunications signals such as radio equipment or spectrum (which is described as active sharing).
[5.75]	The co-location of mobile sites, a form of passive infrastructure sharing, is facilitated by the <i>Telecommunications Act 1997</i> (Cth).
[5.76]	The MNOs have historically built and managed passive infrastructure as part of their networks. There are also a number of independent third-party infrastructure providers that build and maintain passive infrastructure, supplying the MNOs and other access seekers.
[5.78]	Telstra, Optus and TPG have all recently divested some of their passive infrastructure into separate entities, in part to fund the roll-out of their 5G networks. Telstra, for example, has sold a 49% stake in its tower business (now Amplitel Pty Ltd,

ACCC Reasons ref	Findings of fact not contested (extract)
	Amplitel), while Optus has sold a 70% stake in its tower business (formerly Australia Tower Network Pty Ltd, now named Indara Digital Infrastructure).
[5.85]	Another model of infrastructure sharing is domestic roaming. Roaming involves a host MNO carrying the traffic of another MNO on its behalf. The client MNO is not required to deploy any infrastructure in the relevant area.
[5.87]	Access to domestic roaming services in Australia is by commercial agreement. The ACCC has conducted public declaration inquiries in 1998, 2005, and 2017, deciding each time to not declare (regulate) a domestic roaming service.
[5.88]	MOCN and multi-operator radio access network (MORAN) arrangements are also models of active infrastructure sharing. Both models involve multiple MNO parties sharing active assets in certain coverage areas of their networks.
[5.89]	Typical MORAN deployments include the sharing of active base stations, but not spectrum. MOCN deployments include the sharing of active base stations, as well as spectrum shared and owned by the operators.
[5.93]	Mobile networks are increasingly serving multiple purposes. All 3 national mobile networks in Australia are capable of providing fixed broadband services (known as fixed wireless), comparable to those delivered over the NBN or other fixed broadband networks. 5G networks in particular, with their greater bandwidths and more spectrally efficient technology, are well suited to providing fixed broadband services.
[5.95]	all 3 MNOs offer standalone mobile broadband services in addition to the typical mobile broadband service bundled with their retail plans including calls and SMS.
[5.97]	The MNOs also compete for customers in the enterprise and government segment. Enterprise and government customers typically have much larger data requirements and require broadband services in multiple locations across Australia.
[6.3]	In addition to their 'flagship' brands, the MNOs also operate 'sub-brands', which may offer different quality of service at lower prices or with greater inclusions; and which may be targeted at particular customer segments or niches compared to their flagship brands. These sub-brands include Belong (Telstra), Gomo and Amaysim (Optus) and TPG, Lebara and Felix (TPG).
[6.21]	Australia's geography is characterised by a very sparse population density on average, paired with a very urbanised population centred in the capital cities and surrounding major regional centres. Australia is one of the most urbanised countries in the world, with the Estimated Resident Population of the 8 capital cities alone totalling more than 17 million people.

ACCC Reasons ref	Findings of fact not contested (extract)
[6.22]	Mobile networks therefore need only cover a very small proportion of the total landmass in order to provide mobile coverage to the homes and workplaces of a majority of the population.
[6.23]	However, the implication of this degree of urbanisation for mobile coverage is that covering the remainder of the population becomes increasingly expensive or, more accurately, decreasingly economic as network coverage expands in to more remote and less densely populated areas.
[6.28]	Mobile networks also invest in the densification of their networks. As noted in section 5, capacity on a mobile network is a function of site density, spectrum deployments, and radio technology. As the MNOs densify their networks, particularly in major metropolitan areas and denser towns, their networks are able to serve more traffic. This enables more customers to use the network, or enables the MNO to provide greater speeds or other capabilities to end-users.
[6.38]	Telstra's network covers 99.5% of the population (3G) and 99.4% of the population (4G). It also has the most extensive 5G roll-out to date (around 80% of the population).
[6.39]	Telstra claims to cover 2.6 million km ² - '1 million square kilometres more than any other mobile network'.
[6.42]	TPG's own 4G network coverage, which covers 96% of the population. The vast majority of TPG's 5,728 sites nationwide are co-located with one or more MNOs.
[6.46]	Transmission may be a fibre link, but microwave (point to point wireless) links are also extensively used. These are set out in turn.
[6.50]	Much of this fibre is subject to access regulation via the Domestic Transmission Capacity Service, and provides capacity for not only Telstra mobile sites, but Optus and TPG sites also.
[6.58]	Consumers value mobile coverage in the areas in which they live, work and travel.
[6.61]	The degree to which consumers value coverage varies. However, coverage in regional and remote areas is valued not only by consumers who live and work in those areas, but also by metropolitan consumers. In many cases, consumers place value on remote coverage in areas they may only visit very occasionally or may consider visiting in future.
[6.62]	Operators roll out infrastructure to increasingly sparsely populated areas not only to capture market share in those areas, but to retain existing share and win new share in denser areas where coverage is already available.

ACCC Reasons ref	Findings of fact not contested (extract)
[6.63]	In the context of the Proposed Transaction, coverage is an important issue not only for those that live and work within the Regional Coverage Zone, but also those that live in metropolitan areas. The MNOs frequently make coverage claims and price their services on a national basis, and any benefits of wider or deeper coverage in regional areas may also accrue to customers living in less remote areas.
[6.65]	Telstra has stated that maintaining network leadership is critical to its growth strategy leading up to FY2025. Telstra noted that maintaining and extending network leadership will underpin its market position and maintain its price premium. Due to uniform national pricing, this price premium covers both customers in regional areas, as well as in metropolitan areas.
[6.66]	Optus' network covers approximately 98.5% of the population. TPG's network covers 96% of the population, and is extended by a 3G roaming agreement with Optus.
[6.75]	In general, greater geographic coverage or improved network quality can be achieved through the roll-out of mobile sites, obtaining access to more spectrum, or both. Telstra maintains a significant lead in the number of mobile sites it has deployed nationwide and in regional areas. In metropolitan areas alone, Optus has the largest number of mobile sites
[6.79]	MNOs need access to spectrum in order to provide a mobile service. The amount of spectrum and range of spectrum bands held affect the reliability, reach, speed and technologies (such as 5G) of mobile services delivered.
[6.81]	All 3 MNOs make coverage claims in their marketing material. Telstra in particular makes representations regarding its superior geographic coverage and the extent of Telstra's network features heavily in its marketing material. Optus and TPG (through the Vodafone brand) both offer guarantees regarding their networks' coverage, allowing customers to exit their contracts within a fixed period if they are not satisfied with the coverage available.
[6.86]	In many areas, it is unlikely that operators would roll out coverage without government co-contributions, such as from the Mobile Black Spot Program or other State or Territory programs.
[6.99]	perceptions around network leadership are just as important as actual network quality for how consumers choose a new provider when deciding to change providers.
[6.100]	All 3 mobile networks are in the process of rolling out their 5G networks.
[6.101]	Telstra has a considerable lead in the deployment of 5G, with its 5G network covering more than 80% of the population.

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[6.106]	Optus and TPG's 5G networks are more limited by comparison. Both Optus and TPG are affected by government security guidance (the Telecommunications Sector Security Reforms, TSSR guidance) requiring them not to use radio access network equipment provided by 'high-risk' vendors in their 5G roll-outs.																				
[6.107]	For both Optus and TPG, this TSSR guidance prevents the use of Huawei equipment in their 5G networks, which they had previously used in their 4G networks and had planned to continue using alongside Huawei 5G equipment																				
[6.108]	Telstra is not similarly affected. Telstra uses very limited high-risk vendor equipment in its network																				
[6.113]	<p>The 3 national MNOs are the largest commercial users of spectrum licences in Australia. The MNOs, along with NBN Co, hold the vast majority of spectrum licenced spectrum across 3 low (sub-1 GHz) bands and 5 mid (1-6 GHz) bands:</p> <ul style="list-style-type: none"> • Low-band: 700 MHz, 800 MHz (including 850 MHz expansion), 900 MHz • Mid-band: 1800 MHz, 2 GHz, 2.3 GHz, 2.5 GHz, 3.4 GHz 																				
[6.114]	The MNOs also own high-band (known as 'millimetre wave') spectrum licences in the 26 GHz band. This band has not seen wide deployment. No high-band spectrum is included in the Proposed Transaction.																				
[6.115]	Table 2 below shows the relevant spectrum holdings of the MNOs in regional Australia. Licence areas vary between bands, but largely reflect the situation in the 17% Regional Coverage Zone.																				
Table 2	<p><i>Table 2: Indicative MNO spectrum holdings in regional Australia</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Telstra</th> <th style="text-align: center;">Optus</th> <th style="text-align: center;">TPG</th> <th style="text-align: center;">Licence expires</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">700 MHz</td> <td style="text-align: center;">2x20 MHz</td> <td style="text-align: center;">2x10 MHz</td> <td style="text-align: center;">2x15 MHz</td> <td style="text-align: center;">December 2029</td> </tr> <tr> <td style="text-align: center;">800 MHz</td> <td style="text-align: center;">2x15 MHz</td> <td style="text-align: center;">-</td> <td style="text-align: center;">2x5 MHz</td> <td style="text-align: center;">June 2028</td> </tr> <tr> <td style="text-align: center;"><i>850 MHz Expansion band</i></td> <td style="text-align: center;"><i>2x10* MHz</i></td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;"><i>June 2044</i></td> </tr> </tbody> </table>		Telstra	Optus	TPG	Licence expires	700 MHz	2x20 MHz	2x10 MHz	2x15 MHz	December 2029	800 MHz	2x15 MHz	-	2x5 MHz	June 2028	<i>850 MHz Expansion band</i>	<i>2x10* MHz</i>	-	-	<i>June 2044</i>
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800 MHz	2x15 MHz	-	2x5 MHz	June 2028																	
<i>850 MHz Expansion band</i>	<i>2x10* MHz</i>	-	-	<i>June 2044</i>																	

ACCC Reasons ref	Findings of fact not contested (extract)				
	900 MHz	-	2x25* MHz	-	June 2044
	1800 MHz	2x35-2x40 MHz	2x20-2x25 MHz	2x10-2x20 MHz	June 2028
	2 GHz	2x10 MHz	2x5 MHz	2x5 MHz	October 2032
	2.3 GHz	-	-	-	July 2030
	2.5 GHz	2x40 MHz	2x20 MHz	-	September 2029
	3.4 GHz	50-82.5 MHz	30-35** MHz	20-45 MHz	December 2030
	<p>* Telstra's 850 MHz expansion band spectrum licence commences in mid-2024. Optus' 900 MHz spectrum licence commences in mid-2024.</p> <p>** Optus also holds 65 MHz in Regional WA.</p> <p>Source: ACMA, Register of Radiocommunications Licences.</p>				
[6.125]	Currently, Telstra makes heavy use of its 700 MHz holdings for a broad coverage layer on its 4G network, nationwide. The ACCC expects this will continue for the foreseeable future.				
[6.125]	Telstra's 800 MHz spectrum is currently deployed in service of its 3G network. However, Telstra is progressively re-farming its 800 MHz spectrum in some areas away from 3G and onto its 5G network. Telstra will close its 3G network in 2024.				
[6.128]	Telstra's 5G network to date has largely been deployed on its 3.4 GHz spectrum. This is broadly in line with international practice, with spectrum in the wider 3.4-4.2 GHz band referred to as the 'pioneer band' for 5G. Both Optus and TPG also have deployed the majority of their 5G sites on 3.4 GHz spectrum to date.				

ACCC Reasons ref	Findings of fact not contested (extract)
[6.130]	The ACMA is currently in the process of allocating spectrum licences in the 3.4 and 3.7 GHz bands. The ACCC has provided advice to the ACMA that this spectrum is a close substitute for exiting spectrum licences between 3400 MHz and 3700 MHz (the 3.4 GHz band).
[6.131]	This process will make a large amount of spectrum available in regional areas which may be used by the MNOs to deploy 5G services, both for mobile and fixed wireless. Following these allocations, all spectrum between 3400 and 3750/3800 MHz in regional areas will be spectrum licensed and allocated.
[6.132]	Following this auction, the ACMA intends to make up to 200 MHz of spectrum in the 3.8-4.0 GHz band available as area-wide apparatus licences (AWLs).
[6.135]	Licences in 7 spectrum bands used by the MNOs expire between 2028 and 2032. This includes all four bands (700 MHz, 800 MHz, 2 GHz, 3.4 GHz) relevant to the Proposed Transaction. This is within the initial ten-year period set out in the agreements. The ACMA intends to begin the process of consulting on these licence bands in the next year.
[6.137]	For a given level of network quality at a given point in time, retail mobile service providers compete on the price and inclusions of their service offerings. This includes among their flagship and sub-brands, as well as MVNOs. As discussed above, the ACCC considers MVNOs impose a weaker competitive constraint than other MNOs.
[6.144]	The retail brands of the MNOs, along with MVNOs, also compete on feature inclusions.
[6.148]	Mobile providers also compete to offer the fastest data speeds over their networks (typically download speeds).
[6.151]	As with coverage and capacity, the speeds an MNO is able to provide to its customers is driven by the extent and architecture of the underlying infrastructure deployed on their network, including access to spectrum.
[6.152]	The availability of 5G technology is an increasingly critical focus of competition in the supply of mobile services.
[6.153]	5G is the newest mobile technology to be deployed, and operators and vendors claim it represents a step-change in the capability of mobile networks. The wide deployment of 5G will enable enhanced mobile broadband services, as well as other capabilities such as reliable low-latency network connections and mass machine communications including 'internet of things' uses.
[6.154]	5G also enables the deployment of fixed wireless broadband services on a greater scale due to its more efficient use of spectrum.

ACCC Reasons ref	Findings of fact not contested (extract)
[6.154]	All 3 MNOs now offer some form of 5G fixed wireless product. 5G fixed wireless has the potential to allow the vertically integrated MNOs to bypass use of the NBN wholesale network in order to serve retail fixed broadband customers.
[6.156]	Deploying 5G infrastructure allows MNOs to offer retail and wholesale mobile services that make use of greater capacity and speed, and offer new and differentiated services in the future. Where providers compete on speed, network reliability and the availability of 5G, an advantage in the underlying infrastructure allows an MNO to win market share from its rivals.
[6.162]	Perceptions around network leadership are important for how consumers choose a mobile provider.
[6.164]	Consumers are increasingly upgrading their handsets to models that support 5G, with 5G ecosystem support developing around all major device manufacturers.
[7.2]	Telstra and TPG have entered into 3 interrelated agreements to implement the Proposed Transaction: the MOCN Service Agreement, the Spectrum Authorisation Agreement, and the Mobile Site Transition Agreement.
[7.4]	TPG will also be able to provide the following services within the Regional Coverage Zone by relying on services provided by Telstra under the MOCN Service Agreement
[7.4]	<ul style="list-style-type: none"> • Fixed wireless access using combined 3.6 GHz spectrum
[7.4]	<ul style="list-style-type: none"> • Narrow Band Internet of Things (NB-IoT) using Telstra 700 MHz spectrum band
[7.4]	<ul style="list-style-type: none"> • capability on a mobile internet service used as a back-up (Fixed NBN Fallback).
[7.5]	Under the MOCN Service Agreement fees payable by TPG to Telstra will include
[7.5]	<ul style="list-style-type: none"> • a fixed annual charge for access, payable in equal quarterly instalments;
[7.5]	<ul style="list-style-type: none"> • charges dependant on the number of services in operation TPG is servicing
[7.5]	<ul style="list-style-type: none"> • a per GB charge for data consumed by TPG's use of the MOCN service in the Regional Coverage Zone

ACCC Reasons ref	Findings of fact not contested (extract)
[7.5]	<ul style="list-style-type: none"> charges for fixed wireless access services in operation NBIOT services in operation and NBN Fallback services in operation
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.6]	<p>[Confidential to the Applicants] [REDACTED]</p>
[7.9]	<p>Both TPG and Telstra will continue to operate their own mobile core networks. TPG will remain responsible for enhancements, upgrades, interconnection arrangements, and the acquisition of any goods or services from third parties for the purpose of developing the TPG mobile core network</p>
[7.10]	<p>Term and exit: The initial term of the MOCN Service Agreement is 10 years, with TPG having 2 further 5 year options to extend the agreement</p>

ACCC Reasons ref	Findings of fact not contested (extract)
	<ul style="list-style-type: none"> a) TPG gradually building a limited number of sites ... b) TPG not decommissioning mobile sites in the 80%+ population coverage area (as it is doing with the Proposed Transaction) c) TPG's geographic coverage remaining less than Telstra's and Optus' d) TPG retaining ownership of all of its active infrastructure (both the radio access network and core network), and
[8.90]	TPG's current 3G roaming agreement with Optus provides TPG with coverage to [Confidential to TPG and Optus] █████ of the population.
[8.91]	Optus' network currently has 98.5% population coverage
[9.4]	The ACCC has considered the Proposed Transaction in the context of national markets for wholesale and retail supply of mobile services, because:
[9.4(a)]	mobile services are provided to consumers by their MNOs (and MVNOs) on a national basis, with consumers able to use services anywhere in Australia that their MNO (or MVNO) has network coverage.
[9.4(a)]	Mobile services are not advertised as being specifically for customers living in metropolitan or regional areas.
[9.4(b)]	MNOs (and MVNOs) set prices on a nationally consistent basis.
[9.4(b)]	MNOs (and MVNOs) offer the same range of retail services in all areas where they have coverage at the same price.
[9.4(c)]	Decisions to build infrastructure in any given geographic area are made having regard to the effect of any associated investment on market shares in all areas of the country.
[9.11]	MNOs compete on a range of factors to gain an advantage over their rivals. First, MNOs compete over the coverage, speed, and other quality dimensions of the mobile services they offer to customers.
[9.11]	These quality dimensions are directly influenced by the nature and extent of the underlying network infrastructure the MNO owns or has access to.

ACCC Reasons ref	Findings of fact not contested (extract)
[9.11]	depending on the existing network infrastructure an MNO has at any given point in time, MNOs will compete based on price and inclusions (including data and content) made available in their offerings.
[9.12]	MNOs make ongoing decisions regarding how much to invest in their network coverage and quality. These decisions extend to how much spectrum to acquire (and at what price), how far to extend their geographic network coverage, what generations of mobile network technology to provide over which areas of their network, and the depth/density of their network coverage. Network investment is continuously evolving and ongoing.
[9.14]	As an alternative to building their own infrastructure, MNOs may in some instances enter agreements to access services provided by the network infrastructure of other MNOs or third parties. Such agreements can enable the acquiring MNO to offer higher service coverage and quality than they could using only their own networks.
[9.109]	TPG's current network covers 96% of the total population and is extended further by a 3G roaming agreement with Optus. TPG has a high-capacity network in metropolitan centres and has focused its 5G roll-out in these areas.
[9.110]	In the future with the Proposed Transaction, TPG will decommission its sites in the Regional Coverage Zone that are not transferred to Telstra.
[9.111]	TPG is in a relatively poor infrastructure position in the Regional Coverage Zone which would be commercially difficult to overcome on its own.
[9.184]	In the immediate term post-transaction, ... increased service quality of TPG in the Regional Coverage Zone from its improved geographic coverage, speed, and access to 5G will enable it to exert a stronger competitive constraint on Optus and Telstra.
[9.196]	Under the Proposed Transaction, TPG will pay Telstra an initial charge of [Confidential to the Applicants] per GB of data in the Regional Coverage Zone and [Confidential to the Applicants] per service in operation [Confidential to the Applicants]
[9.276]	The Radiocommunications Act creates a secondary market for spectrum licences by permitting the trading and third-party authorisation of spectrum licences, and enabling the ACMA to make rules regarding the trading of licences. Secondary trading may promote efficiency in downstream markets, by enabling spectrum to move towards its highest value use.
[10.182]	Currently, all mobile devices sold in Australia are designed to enable users to call an emergency service number (e.g. 000) using any available mobile network. If the users' host network is unavailable (e.g. due to congestion, outage, natural disaster or out of coverage area), the call will be automatically carried on other nearby networks that are still operational and have

ACCC Reasons ref	Findings of fact not contested (extract)
	<p>coverage in the users' location. The ability to call an emergency service number and use any operational mobile network is different from roaming, as it does not require an active mobile account or a SIM in the mobile handset (unlike roaming). Absent any commercial agreements, MNOs are not required to provide roaming services on their networks to enable customers of other MNOs to make calls to non-emergency service numbers.</p>
[10.214]	<p>quality mobile network and access to newer technologies is important to support businesses and economic growth in regional Australia.</p>
[11.5]	<p>On 1 November 2022, the Applicants provided the ACCC with 2 draft section 87B Undertakings, the first from both Telstra and TPG (the Joint Undertaking), and a second from just TPG (the TPG Sites Undertaking).</p>