

30 September 2021

2021 Regional Telecommunications Review Secretariat
Department of Infrastructure, Transport, Regional Development and Communications
GPO Box 594
CANBERRA ACT 2601

Via email to: secretariat@rtirc.gov.au

Permission to post publicly

Re: 2021 Regional Telecommunications Review

Dear Sir or Madam,

Omnispace Australia Pty Ltd ("Omnispace") appreciates the opportunity to submit a response to the Department of Infrastructure, Transport, Regional Development and Communications on the "2021 Regional Telecommunications Review Issues Paper".

Telecommunication services play a vital role in addressing the challenges and opportunities facing regional, rural and remote Australians, and Omnispace applauds the Regional Telecommunications Independent Review Committee's efforts to set a long-term forward agenda for infrastructure improvements to maximise opportunities in these areas. We look forward to collaborating with the government, regional communities and telecommunications sector overall.

Background on Omnispace

Omnispace is the owner and operator of the only global non-geostationary orbit ("NGSO") satellite system that operates in the 2 GHz S-band (1980-2025 MHz Earth-to-space / 2170-2200 MHz space-to-Earth) with feeder links in the 5/6 GHz band. Omnispace's NGSO system has been brought into use in accordance with applicable International Telecommunication Union ("ITU") regulations. Omnispace is leveraging over AUD\$1 billion of assets that the company acquired to deploy its NGSO system to provide Mobile Satellite Services (MSS) and hybrid connectivity via a complementary ground component (CGC).

Omnispace is managed by veteran satellite industry executives and has investments from leading private equity firms and strategic partners with a successful track record in the wireless and satellite domains. Omnispace's shareholders include Columbia Capital LLC, Telcom Ventures LLC, Greenspring Associates, Fortress Investment Group, and Intelsat S.A.

Omnispace is currently offering MSS capacity in various markets through its existing operational on-orbit F2 satellite network. The F2 satellite network is the first element of the NGSO constellation that will be capable of providing 24 x 7 coverage and connectivity around the globe ("Omnispace System"). Omnispace plans to launch two additional satellites into space next year, leading to the expansion of the Omnispace System.

Omnispace is currently investing in new technology and infrastructure as part of its next generation global constellation to provide hybrid 5G connectivity. The Omnispace network will power critical global communications, including 5G NTN (5G Non-Terrestrial Network) and Internet of Things (IoT) connectivity, directly from its satellites in space to mobile devices around the world. Omnispace is building upon the investments it has already made to validate 3GPP standards-based 5G products and technologies and to demonstrate 5G connectivity from space.

Omnispace's hybrid MSS system can provide a broad range of services of interest to Australia, including a wide array of possible commercial and government communications:

- **Industries:** Commercial MSS services to enterprises in agriculture, mining, fishing, etc.;
- **Hybrid:** In areas that are lacking in coverage or capacity due to blockage or density;
- **Connectivity:** Internet connectivity in rural and remote areas;
- **Emergencies/Public Safety:** Communications during natural and man-made emergencies, as well as disaster warnings to the public and government agencies;
- **Defence:** Increased capacity and resiliency for mobile defence applications;
- **Internet of Things (IoT):** Connected car applications, smart city (urban and rural), transportation and logistics (on-shore and off-shore);
- **Unmanned Aerial Vehicles:** situational awareness for disasters such as fires, damage caused by weather events, delivery, insurance inspections; and
- **Aviation Networks:** hybrid network that utilises both satellite and terrestrial networks to provide Internet access to airline flights.

In Australia, Omnispace has an operational satellite Earth station at Ningi QLD with MSS feeder links for its F2 satellite network in the 5 GHz and 7 GHz frequency bands. Ningi also provides Fixed Satellite System (FSS) feeder links for the ASIABSS satellite network in the 7 GHz segment; therefore, the company has strong and specific interests in Australia's telecommunications sector.

Additionally, Omnispace has been working closely with the Australia Communications and Media Authority (ACMA) on the replanning of the 2 GHz band to explore offering hybrid satellite terrestrial IoT service in Australia in line with the ACMA objectives of enabling new entrants to offer innovative satellite services to regional and remote areas. In this regard, Omnispace currently has an experimental licence for a viticulture pilot in Victoria.

Built around globally harmonised spectrum in the 2 GHz band and 5G NTN advanced technologies, the Omnispace System is ideally positioned to provide a wide array of commercial and government communications needs, subject to requisite licences and approvals.

Thank you again for the opportunity to provide comments on the "2021 Regional Telecommunications Review Issues Paper." Omnispace's comments are presented in Attachment 1.

Please contact me should there be a need for clarification or additional information.

Sincerely,

Les Davey
Ph: [REDACTED]
Managing Director
Omnispace Australia Pty Ltd

ATTACHMENT 1

Issues for Comment

In this section, Omnispace responds specifically to the issues for comment that have been raised by the Department of Infrastructure, Transport, Regional Development and Communications on the “2021 Regional Telecommunications Review Issues Paper”.

1. What telecommunications services are required in regional Australia to meet current and future needs? Are there any things regional communities and businesses need to do, but can't, on their existing services?

In parts of regional Australia, the costs of improving mobile coverage are high due to factors such as the distance from existing infrastructure. Given the smaller populations in many regional areas, this high cost reduces the commercial incentives for carriers to expand their networks. Satellite services have an important role to play in providing ubiquitous coverage in remote and rural areas since their need for on-the-ground infrastructure is minimal compared with terrestrial networks. As we move into the era of 5G Non-Terrestrial Networks (5G NTN) which is standardised within 3GPP, the industry standards body for mobile communications globally, satellite networks and terrestrial networks have an option to be integrated to provide hybrid satellite mobile connectivity such that users in remote and rural areas can always be connected to a satellite signal via their off-the-shelf mobile devices.

5G is often considered an urban phenomenon, particularly 5G deployments that utilise higher frequency bands whose propagation characteristics make usage in rural and remote areas impractical. However, as demand for new wireless services continues to grow in rural and remote areas, it is the advent of 5G NTN and the deployment of these systems that will be an effective solution to complement terrestrial networks in providing services in more remote regional areas that are expensive or difficult to cover with terrestrial networks. 5G NTN will play an important role in bringing 5G services such as transport, eHealth, energy, automotive, public safety, and disaster relief to areas that currently do not have access to such advanced wireless services. Therefore, as the Government develops policies for regional, rural and remote Australia, it will be important to plan for new technologies such as 5G NTN that reduce the digital connectivity gap that exists between urban and rural businesses and consumers.

Increasingly, Internet of Things (IoT) and machine to machine (M2M) applications are being utilised in regional and remote areas to automate processes that benefit from data collection to improve productivity and efficiency such as the monitoring of council utilities and EFTPOS machines in regional communities, as well as tracking transport and freight on regional highways. Regional businesses are also adopting networks of smart devices, such as sensors, tags and machinery, connected to IoT to collect, process and analyse data. In the agricultural sector, on-farm connectivity is enabling farmers to make real-time, data-based decisions to maximise yields, manage irrigation and the usage of fertilisers and pesticides, and monitor livestock health. A major benefit of many IoT devices is that they are low-powered, battery operated and can often last for years sending data intermittently via a satellite passing overhead

several times a day. In addition, the low price of these IoT devices can be of critical importance in regional, remote and rural areas where the cost of providing always on connectivity can be a high barrier for industrial use.

2. What changes in demand, barriers or challenges need to be addressed when it comes to telecommunications services in regional, rural and remote Australia?

Significant investment is necessary to provide connectivity across Australia's large landmass, despite the relatively small population in remote areas. The rollout of new systems takes time, and planning for the future must start early so new systems are available when needed. For example, the ACMA is currently replanning the 2 GHz S-band frequency band to enable new telecommunications services including hybrid mobile satellite and narrowband IoT services to become available throughout Australia. This rulemaking process takes significant time and collaboration with industry stakeholders as well as incumbent occupants of the frequency bands. To spur the deployment of new satellite services to regional, rural and remote Australia, the ACMA may need Government support to clear existing users out of the 2 GHz frequency bands in a more timely manner than is currently forecasted. At present, the band is planned to be licenced in 2023; however, as currently forecasted, some existing Television Outside Broadcasting (TOB) licensees may not be cleared from the band until 3-5 years beyond this timeframe. There are innovative mobile satellite service providers including Omnispace eager to provide services in Australia ahead of this timeline.

3. How have the Government's policies and programs affected telecommunications service outcomes in regional, rural and remote Australia? How can these be improved?

The Government of Australia has been proactive in encouraging satellite usage for regional and remote areas of Australia. It is important for the Government to continue working closely with the ACMA to ensure TOB service providers are transitioned out of the 2 GHz frequency band so that the band can be licenced for hybrid mobile satellite services by 2023 and utilised in regional and rural areas for a variety of critical enterprise and consumer services as soon as possible.

4. How do service reliability issues impact on regional communities and businesses? How do outages, including in natural disasters, impact on communities and businesses?

5. How might such impacts be addressed to ensure greater reliability? How can the network resilience be addressed in regional areas?

Response to questions 4 and 5 combined:

Service reliability issues including outages in natural disasters can have a major impact on regional communities and businesses. Bushfires and extreme weather events devastate telecommunications networks when they are most needed. Response efforts and access to essential services in the aftermath of disaster events can be disrupted when telecommunications infrastructure has been impacted. During natural disasters or other unforeseen events that entirely disable the terrestrial network, satellites are often the only

option for rapid recovery and restoration. Considering increasing changes in climate, it is important that federal, state/territory, and local council entities collaborate with industry to develop reliable communications back-up plans to utilise satellite communications networks in the case of outages in terrestrial networks. Additionally, the increasing use of low power, long battery life IoT in sensors for tracking applications over satellite networks can ensure that even in the case of terrestrial network outages, important critical information continues to be transmitted.

Given the wide array of IoT applications that can be deployed in rural and remote areas using satellite connectivity, IoT devices can play an important role in predicting and warning of impending natural disasters, even when there is no one near the site. Satellite IoT sensors can be used to measure carbon monoxide and other combustion gases and fire conditions to define fire alert zones. Other life-saving satellite IoT applications include the monitoring of water level variations in rivers, dams and reservoirs as early warning systems to prevent floods and enable disaster management by monitoring upstream water levels to assist with determining when a flood will occur downstream, and earthquake early detection devices that can be distributed throughout specific locations to monitor tremors. These are only a few of the satellite IoT applications that can be deployed to warn of impending natural and man-made disasters in regional and remote areas to improve network resilience and sustainability.

In addition to satellite IoT, the deployment of robust 5G NTN will also offer service continuity to provide access where it is not feasible using terrestrial networks, as well as service ubiquity to improve 5G availability when disasters result in temporary outages or destruction of terrestrial networks. We believe that 5G NTN will play an important role in network reliability and resiliency in regional areas of Australia.

6. How did the use of digital services change for regional consumers and businesses during the response to the COVID-19 pandemic? What insights for future service delivery does this provide?

The demand for digital services increased globally for consumers and businesses during the COVID-19 pandemic as people were confined to their homes and unable to travel to conduct their normal day to day business. Larger segments of the population came to rely more on digital connections for work, education, health care, daily commercial transactions and essential social interactions. In regional and rural areas, it is extremely important to ensure equitable digital service delivery for consumers and businesses, so they have access to digital tools and training for future jobs. All technologies should be considered for deployment including satellite technologies, which can provide connectivity in hard-to-reach locations.

7. What can be done to improve the access and affordability of telecommunications services in regional, rural and remote Indigenous communities?

Ideally, the goal would be to enable as many different services as possible to reach regional, rural and remote Indigenous communities because when there is competition among different services, prices come down. Given the high cost of providing services to these areas, it may not be possible to have multiple service choices in these areas; however, the Government

should do its best to make spectrum available to spur innovative mobile and satellite services such as 5G NTN so that satellite operators can work in conjunction with mobile network operators to roll out services to regional, rural and remote communities within Australia. Continued universal service funding or other government incentives are also likely to be required to ensure the affordability of services and devices for remote Indigenous communities.

8. How can investment in telecommunications infrastructure work with other programs and policies to encourage economic development in regional Australia?

Investment in telecommunications infrastructure should work in concert with the wide variety of other programs and policies already available in Australia to encourage economic development in regional Australia. For example, as telecommunications infrastructure is built out in regional, rural and remote areas, it is important to coordinate regionally such that the other programs are also simultaneously made available. For example, government grant programs and public awareness initiatives, as well as Regional Tech Hubs, IoT applications such as smart agriculture or mining and online learning, etc., should be made available so that businesses and consumers are able to take advantage of the opportunities that are available from the investments made in telecommunications infrastructure.

9. What role could innovation, including new models, alternative investors or new ways of doing business, play to encourage investment in regional telecommunications infrastructure? What are the barriers?

Innovation in technology has a major role to play in regional telecommunications infrastructure and Australia is leading the curve globally due to the Government's open policies and transparent regulatory model. Australia's legal framework empowers the ACMA to promote infrastructure investment and ensure the efficient and timely assignment of resources to the public for hybrid mobile satellite systems. Allowing hybrid mobile satellite systems to provide services in Australia will bring public interest benefits, such as promote public safety, spectrum efficiency, use the least cost and least restrictive approach to achieving policy objectives, encourage both certainty and flexibility, and balance the cost of interference and the benefits of greater spectrum utilisation.

10. To what extent will new technologies enable significant change to the delivery of telecommunications services in regional Australia over the next 5-10 years? Are there any barriers to accessing these technologies?

The standardisation and deployment of 5G NTN along with widespread rollout of IoT and M2M applications will enable significant change to the delivery of telecommunications services in regional Australia over the next 5-10 years. 5G NTN will enable operators (mobile or satellite or both) to deliver a hybrid satellite terrestrial service across urban, regional, rural, and remote Australia utilising next generation 5G off-the-shelf devices. The devices (such as phones, tablets, laptops or sensors) will automatically connect to the terrestrial 5G network or the satellite 5G network depending on the infrastructure best available to them in their location

permitting seamless service throughout the country without having to change devices. Additionally, the potential of IoT sensors in regional areas can be supported by the increased deployment of 5G NTN systems. The lower latency, higher bandwidth and increased data speeds offered by 5G technology can allow for more widespread use of sensors in the agricultural sector to collect real-time data, as well as the use of automated machinery in industries like mining and logistics.

It will be of continued importance for the ACMA and other Government entities to continue working closely with industry and other stakeholders to adapt existing regulatory frameworks as needed, ensure adequate spectrum is available and that investment opportunities are available for telecommunications infrastructure and services to underserved regional, rural and remote areas.

11. How can Government better support the rapid rollout of and investment in new telecommunications solutions in regional areas?

The Australian Government has been open and transparent in collaborating with stakeholders to adapt regulatory frameworks to accommodate new technologies by creating a low barrier for entry where possible. The importance of this open stakeholder dialogue and iterative process cannot be understated, and we applaud the ACMA for its process in replanning the 2 GHz S-band. It will be important to follow through on the regulatory framework and make spectrum available to industry in the timeframe outlined by the ACMA for the 2 GHz band and to clear the spectrum of incumbent spectrum holders, the Television Outside Broadcasters, as soon as possible, so that innovative new hybrid mobile satellite solutions can be deployed in regional and remote Australia.

12. How can different levels of Government, the telecommunications industry and regional communities better co-ordinate their efforts to improve telecommunications in regional Australia?

The review Committee has recognised the importance of engaging with the main telecommunications industry representative body, that being the Communications Alliance. Omnispace is an active participant in this body's Satellite Services Working Group, which has made many submissions to the ACMA consultations on how satellite services can play a significant role in improving telecommunications coverage and reliability for regional Australia.

13. What changes to Government investment programs are required to ensure they continue to be effective in delivering improved telecommunications?

Omnispace has no view at this time on what changes to Government investment programs are required to ensure they continue to be effective in delivering improved telecommunications.

14. How can regional consumers be better supported to identify, choose and use the best connectivity options for their circumstances, as well as to understand and use their consumer rights?

Omnispace has no view at this time on how regional customers can be better supported to identify, choose, and use the best connectivity options for their circumstances.

15. To what extent is public information on connectivity options, including predictive coverage data and speeds, sufficient to help regional customers make informed decisions? What other information is needed?

Omnispace has no view currently on the sufficiency of public information available on connectivity options to help regional customers make informed decisions.

16. What other matters should the Committee consider in its review and why are they important?

Omnispace supports the ACMA's spectrum reform objectives and notes that increased predictability, faster, more responsive and adaptive regulatory processes, as well as streamlining and simplifying licensing processes would be particularly beneficial to better provide innovative telecommunications services to regional, rural and remote Australia.

Also, we believe that the availability of a class licence should be restored by the ACMA for use of the 1980-2010 MHz and 2170-2200 MHz bands by the mobile-satellite service as class licences are allowed for other satellite services in Australia. The ACMA has stated in other consultations that there are no licences issued in the S-band segments, but then refers to the lack of satellite use of the band in Australia. However, it is the ACMA's own 1996 Embargo 23 that has prevented the licencing of MSS S-band operations in Australia. The exclusive assignment of S-band for TOB in Australia was understood to be an interim arrangement near major cities and should not affect the provision of MSS S-band services, particularly in rural and remote Australia.

Omnispace is keen to establish an MSS S-band service for low-cost ubiquitous terminals, particularly in regional, rural and remote Australia for IoT and M2M and other services that would benefit from class licences for these terminals. We believe the use of a class licence for subscriber/user terminals encourages low-cost adoption of the services by a larger section of the community, reduces regulatory and engineering costs for the ACMA, and therefore increases the overall public benefit provided by the proposed services.