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The Manager
Spectrum Management Outlook and Strategy Section
Australian Communications and Media Authority
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In response to the **ACMA Draft Five-year spectrum outlook 2021–26** published in Mar 2021, OneWeb submits the following comments.

Sincerely,



Peng Zhao,
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OneWeb

General Background on OneWeb

OneWeb is a global telecommunications provider, headquartered in London, UK, but with an Australian entity and numerous ACMA licenses. In fact, Australia is a key part of our global gateway layout, and we expect close and positive customer and service relationship as well.

The OneWeb system will provide low latency, high capacity, connectivity solutions to customers through a new generation of low-earth orbit (LEO) satellites. OneWeb believes that satellite systems have a key role to play in a multi-network broadband ecosystem, often in a complementary way to terrestrial telecommunication solutions. OneWeb will enable terrestrial 5G operators to extend their connectivity to those places that are not so well-connected or where terrestrial networks would not or cannot otherwise reach (e.g. remote areas, aircraft, ships, and trains).

At the outset, OneWeb re-affirms its commitment to investing in Australia and bringing advanced operating systems and networks to the Australian market. OneWeb is well advanced in implementing its plans to provide satellite broadband access to Australian customers and it is about to finish the construction of three Ka-band gateway earth stations in Australia. The up-link frequencies for these gateway stations (and for similar OneWeb gateways all over the world) fall within the range 27.5 ~ 30.0 GHz and therefore OneWeb has a deep stake in the development of these bands in Australia. Those ground infrastructures will facilitate broadband access to rural and remote Australians at fixed locations as well as to mobile terminals for aeronautical, maritime and land applications.

OneWeb is pleased to submit the following comment regarding specific questions ACMA poses on the Draft Five-year spectrum outlook 2021–26.

1. Do you have any feedback on the ACMA's approach to the five-year spectrum outlook?

OneWeb is appreciative of the ACMA's efforts in producing the regularly updated Five Year Spectrum Outlook document. It provides an important insight into spectrum related matters that are deemed of sufficient importance to warrant inclusion in workplans. OneWeb welcomes the opportunity to comment on certain aspects of the current version of the FYSO.

In general, OneWeb would like to note that the COVID-19 pandemic has demonstrated the critical nature of the digital infrastructure to the economy and communities of every nation, it also underlined the connectivity gap between those who have access to broadband internet and those who have not.

Although it is necessary to investigate and support the development of each specific technology in details, telecom policy makers and regulators are also best placed to take in the big picture of connectivity as a whole. For example, rural connectivity is not an issue that can be solved by terrestrial technology on itself, no matter how much additional spectrum they will be provided, especially in mmWave. A combination of both Terrestrial and Satellite service is necessary to make sure all population can be served in the most economical way.

It is therefore spectrum regulators' prerogative to ensure that all technologies have fair access to sufficient amount of the limited spectrum resource. And in order to have the affordable offerings to consumer, it is of critical importance that the allocated spectrum is internationally harmonised spectrum through ITU WRC process, so that their ecosystem can develop and benefit from global economies of scale.

2. **Are there other technology developments or sources of spectrum demand that the ACMA should be aware of in considering spectrum management over the next 5 years?**

ACMA already noted the technology developments are enabling a wide range of new space uses – large NGSO constellations providing broadband to consumers, IoT networks and access to space to scientific and educational institutions.

OneWeb would like to inform ACMA that its existing LEO constellation is under deployment and will be fully in service in 2022. Moreover, OneWeb has already started designing future generation of its LEO satellite constellation for enhanced capacities, and confirms the importance of the Q and V bands to the future generation of its satellite services.

3. **Do you have any feedback on the ACMA’s plans for monitoring, initial investigation, preliminary replanning or implementation of bands?**

40/50 GHz planning

OneWeb notes that currently the FYSO status bands in 37.0 to 43.5 GHz range (40 GHz) is confined to “monitoring” only. OneWeb is somewhat concerned that this band may not receive the warranted attention in a timely fashion noting the importance of this band for future satellite service expansion, notably the provision of high-capacity broadband access to underserved communities and individuals unable to access high data rate broadband via terrestrial means.

It is worth noting that Europe has already made definitive planning decisions regarding the use of this portion of the mmWave spectrum and is clearly determined to find a balanced outcome that satisfies both terrestrial and satellite interests via a band segmentation approach. OneWeb encourages the ACMA to do likewise so that both terrestrial and satellite service providers can plan with a high degree of confidence that their spectrum requirements will be met. To achieve this, it is recommended that this band is elevated to the “initial investigation” stage of the planning process.

OneWeb also has an interest in the 47.2–48.2 GHz and 50.4 to 51.4 GHz bands as options for the expansion of its NGSO constellation, and suggests that these bands are added to the “monitoring” stage in the FYSO.

4. **Do you have any comments about the ACMA’s approach to forward allocations?**

No comment

5. **Do you have any other comments on Part 2?**

Area-wide apparatus licences in other bands

Since the introduction of Area-wide apparatus licenses, OneWeb was successful in securing AWLs for its gateway uplinks in the 27.5 to 30.0 GHz band. OneWeb would like to note that in the satellite industry, the 27.5 – 30 GHz is paired with 17.7 – 20.2 GHz for uplink and downlink respectively, thus both frequency ranges are required to be licensed and protected for the earth station operation. However, the current Australian licensing framework is placing those ranges in two different licensing types. For consistency, and simplicity, OneWeb requests ACMA to consider extension of the AWL license regime to 17.7-20.2 GHz,

so that one license type can be used effectively for the same earth station. Mention of this possibility has been made by the ACMA in past consultation documents, but this is not reflected in the Draft FYSO. OneWeb proposes that this issue warrants more detailed treatment in the FYSO.

Pricing

The issue of spectrum pricing is of utmost importance for OneWeb, and we commend once again the ACMA for steps it has taken for the apparatus license review to guarantee that Australia becomes a more attractive and competitive market for space industry development. This is aligned with the Australian Space Agency's goal to triple the size of the Australian space sector by 2030.

The proposed timelines set out in Table 5 for follow up work on the pricing review consultation seem practical and therefore OneWeb urges the ACMA to complete the work in an expeditious manner so that the anticipated benefits of apparatus license fee reductions can be realised. The current space and space RX license fees applicable for Ku band where OneWeb will operate its user links are prohibitive, and as a consequence will delay the introduction of the OneWeb service offering to medium and high-density population areas.

6. How do you use the FYSO (for example, read once a year or regularly refer back to)?

The Five Year Spectrum Outlook is essential information to wireless industry to ensure there is spectrum supply to meet surging demand for all services. It provides the industry with increased certainty about the government's future allocation plans and management of radio spectrum, and ensure industry has time for planning, capital expenditure and implementation.

Yearly review of the plan is also essential to address the increasing pace of technology evolution in Satellite industry and required increased agility in spectrum management and planning framework. As such FYSO developed by ACMA is among best practices identified by the industry, and often refer to in our discussions with regulators from other countries, who might not yet have a periodically updated spectrum roadmap.

7. Do you find the 6-month and annual progress reports useful?

6-month and annual reports provides regular checkpoints on the progress made by ACMA in the implementation of various aspects defined by the FYSO, and is essential to the industry. In addition, it also helps plan feedback for the next iteration of FYSO.
