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Australian Communications and Media Authority
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In response to the **ACMA Response to implementation of the Spectrum Pricing Review** published in December 2020, OneWeb submits the following comments.

Sincerely,



Peng Zhao,
Director, Government Affairs
OneWeb

OneWeb welcomes the ACMA's response to industry submissions related to the review of spectrum pricing and appreciates the opportunity to offer comment on both the Work Programme and the first round of changes to apparatus licence taxes proposed in the Spectrum Pricing Review outlined in Appendices A, B and C of the response paper.

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.

Satellites already play significant roles in today's 2G, 3G and 4G/LTE networks and are well placed to continue playing such roles for 5G networks. This is especially the case with the new generation of LEO satellites, such as OneWeb's, that will be able to provide low latency (<50msec delay round trip on RF paths), high-throughput connections to any spot on the globe. OneWeb's satellite service will be supported by innovative low-cost user terminals that can provide 3G, 4G LTE, 5G and Wi-Fi connectivity, thus bringing high-speed access to surrounding areas of a satellite terminal independent of 5G terrestrial mobile cellular coverage.

In a complementary role, 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). OneWeb has commenced work on the establishment of three gateway uplink facilities in Australia that 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 in Australia

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.

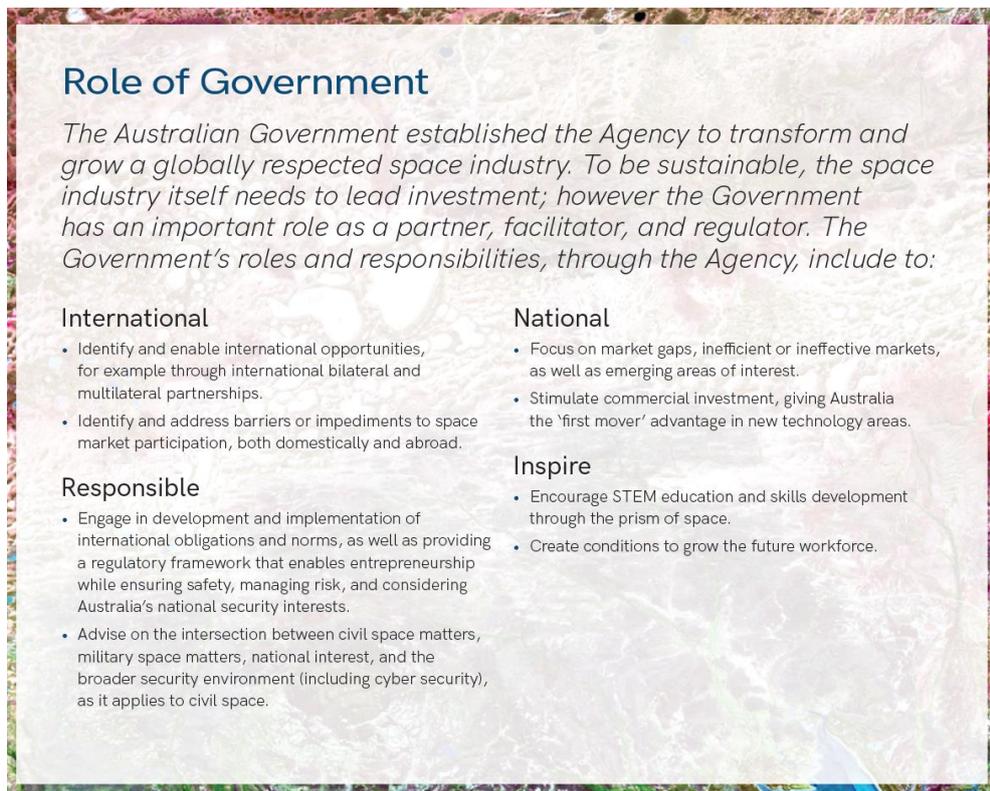
While OneWeb has long-term connectivity plans in Australia, those three gateway earth stations are temporarily authorized through Scientific Apparatus Licenses as the current licensing framework cannot accommodate the requirements of non-geostationary (NGSO) gateway earth stations. OneWeb recognizes that the licensing arrangements under consultation consider the particularities of NGSO gateway earth stations and will facilitate the deployment of this innovative technology in Australia.

General introductory remarks

As a general comment OneWeb appreciates the challenge of developing a practical tax regime for access to a spectrum resource by a large diverse group of users for a wide range of terrestrial and

space applications appropriate notably when there are numerous legacy considerations that have to be managed.

OneWeb nonetheless is of the view that significant changes to the current tax regime are warranted and notes the ACMA's reference to the Governments Space Strategy articulated in the Australian Space Agency's "Australian Civil Space Strategy 2018 to 2028" document. One element of the Space Agency paper is very pertinent to the spectrum pricing topic currently under consideration, namely the Government's role in growing an Australian space industry as summarised below.



Specifically, it is noted that the regulatory framework developed for the operation of the space industry can enable "entrepreneurship". The regulatory framework and associated tax regime for spectrum access is a significant factor in the further development of the Australian Space industry and OneWeb has comments on both and these are contained on the following sections addressing aspects contained in Appendices A, B & C in the ACMA paper.

Comments on Appendix A "Process for deriving new location weightings".

The proposal to reduce the current weightings for bands above 8.5 GHz is logical and warranted, particularly in the satellite case and therefore a significant reduction in weighting is strongly supported. The proposed change would better reflect the limited spectrum denial impact when satellite bands are shared with terrestrial services as is typically the case for bands above 8.5 GHz and the fact that satellite spectrum is extensively reused in the same geographic area via multiple GSO locations and NGSO orbits. Figure 2 from the ACMA paper shows that the proposed new weightings still leave Australia as an outlier among its peer group particularly for the "Australia – wide" and "high density" areas. This suggests that further review is warranted to guarantee that Australia becomes the attractive and competitive market for space industry development as championed by the Space Agency and Competition Commission.

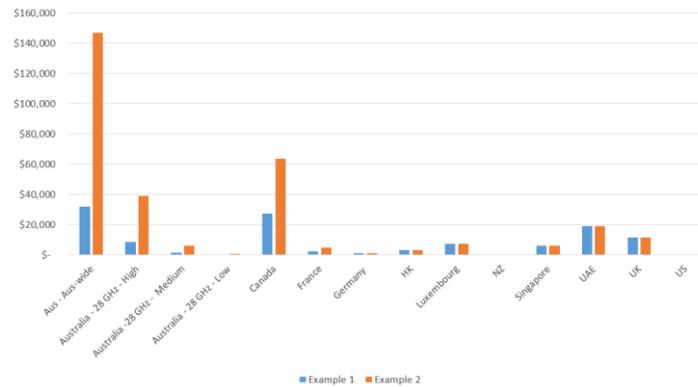


Figure 2 from Appendix A

Comments on Appendix B “Micro service pricing and a system approach to earth stations”.

Appendix B raises a key space services regulatory aspect concerned with proposals for a “systems” approach to earth station licensing. To date the lack of a “systems” based approach has impeded the development of NGSO systems owing to the onerous imposition of fees on the operation of the multiple antennas required for certain NGSO ground systems such as gateways. The proposal for a system-based approach is strongly supported.

Such an approach is also more aligned with opportunity cost of spectrum, for which a co-located array of antennas, using the same frequency, does not deny more spectrum from other users than a single antenna would. This gateway licensing approach has been adopted in many countries around the world. For example, the US considers that *“Multiple antennas in an NGSO FSS gateway earth station complex located within an area bounded by one second of latitude and one second of longitude may be regarded as a single earth station for purposes of coordination with terrestrial services.”*¹ The proposed reductions would also bring access charges more in line with those imposed in other jurisdictions and encourage investment in the Australian space industry.

Comments on Appendix C “Proposed apparatus license tax rates”.

The tax schedule for space system licenses set out in division 8A is of critical importance for OneWeb and the space industry generally. The current tax rates are a serious impediment to investment in space-based communications services. While the adoption of a systems approach to earth station apparatus licensing and adjustments to the weighting for bands above 8.5 GHz will reduce the impediments, OneWeb is of the view that additional refinements and adjustments are required for certain types of space-based services.

While the proposed adjustments would significantly reduce the burdens in the case of gateway links (for example because operators can choose to establish them in a small number of locations outside the high density HCIS area to take advantage of the lower rates), the fact remains that HCIS areas as currently defined cannot be readily accommodated with commercial satellite beam designs nor is the HCIS designation of high, medium, low and remote, a reflection of the commercial potential of satellite networks as is generally the case for terrestrial services.

The dilemma faced by satellite operators including OneWeb is that to take advantage of the class license regime and thereby avoid individual license fees for VSAT or ESIM terminals, they are required

¹ 47 CFR § 25.203 (c)(6) - Choice of sites and frequencies:

to take out separate space transmit and space receive apparatus licenses for large portions of bandwidth for all areas where they want to operate under a class license. In effect this forces them to take out Australia wide apparatus licenses when only a very small fraction of their customers is located in, or at the edges of areas classified as “high density”. Those users are typically not reached by any terrestrial services; however they are also at risk of not being offered a satellite service despite readily available coverage, due to the high licensing costs for satellite operators to service the area. This represents a significant impediment for operators such as OneWeb intent on providing ubiquitous broadband access. In other words, the way the division 8A tax schedule is structured does not properly reflect spectrum use, opportunity cost or spectrum denial in the case of ubiquitous services notably for bands above 8.5 GHz.

In this regard, we note that as part of the Work Plan initiative outlined in the Work Plan section of the paper, reference is made to the release of a series of short quarterly papers or presentations seeking views on different approaches in March and June 2021 in the lead up to a September 2021 consultation paper proposing new approach to geographic areas and bands. Reference is made to the following:

- *Identifying the best approach to reviewing density areas and/or alternatives to density areas.*
- *Identifying an approach to reviewing the frequency ranges.*

OneWeb wishes to offer some proposals (below) on both of the above suggestions aimed specifically at addressing the shortcomings we see with the division 8A tax table in relation to provision of class licensed services and the requirement to secure space transmit and receive apparatus licenses as a prerequisite condition.

Comments of work programme and timing of implementing changes to the tax scales.

OneWeb is somewhat concerned about the way it is proposed to finalise and then implement proposed tax changes. The stated criteria for justifying and or triggering a change on the tax rates are vague and at face value may be difficult to implement in a timely manner particularly if linked to a Work Plan. It is our view that tax rate changes are primarily matters of sound public policy and only indirectly driven by technical considerations such as ones that would be considered as an element of a Work Plan. It is clear to us that there are very sound policy reasons for adjusting the tax rates and the ACMA itself has provided supporting arguments and therefore once decisions have been made regarding the appropriate tax scales a revised scale should be implemented expeditiously.

OneWeb proposals for changes to the division 8A tax scale.

OneWeb is cognisant of the fact that there is merit in building on the foundation of the current apparatus tax regime rather than trying to undertake a radical overhaul, and in this respect is of the view that the division 8A tax scale can be refined to take account of the deficiencies identified above.

More specifically, we believe the tax rate for Ku band remains disproportionately high in the new proposal. The OneWeb system is reliant on the Ku band in most of the coverage area for user terminals, similar to other operators who might use the Ku band for the same purpose. However, under the ACMA proposed revised weightings using Ku band will lead to a 9 to 18 times higher tax than Ka band, for the same amount of spectrum. While recognising that potentially different spectrum demand and different propagation characteristics between the two bands should be reflected in some difference in tax, the proposed revision results in an unjustifiable discrepancy among satellite operators competing to provide similar service.

Considering the above, OneWeb submit that a ratio of 1.5-2 times difference between Ku and Ka band is reasonable as is currently the case for division 8A. Therefore, an introduction of 90% reduction should apply both to Ku and Ka band to keep the same ratio, and thereby provide a more level playing field for satellite operators using different bands to deliver the same service to the same users.

OneWeb proposal of the Apparatus Licence Fee Schedule. Annual licence tax (\$ per kHz).

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
>8.5 to 17.3 GHz	1.0500	0.1050	0.3780	0.0378	0.0894	0.0089	0.0065	0.0006	0.0031	0.0003
>17.3 to 31.3 GHz	0.7350	0.0733	0.1957	0.0195	0.0307	0.0031	0.0033	0.0003	0.0000	0.0000
>31.3 to 51.4 GHz	0.2004	0.0200	0.1068	0.0106	0.0166	0.0017	0.0006	0.0001	0.0000	0.0000
>51.4 GHz	0.0283	0.0028	0.0028	0.0003	0.0028	0.0003	0.0003	0.0000	0.0003	0.0000

Comments to ensure efficient use of spectrum

Finally, as noted in point 2 of the summary of Spectrum Pricing Review recommendations, ACMA will be considering the differences in taxes as applied for various licensing regimes. OneWeb would like to focus attention on the newly introduced AWL regime which is currently applicable to 26 GHz and 28 GHz only. While we understand ACMA introduced this license type primarily in the context of terrestrial services, this has now been demonstrated as also very useful for satellite deployment scenarios, such as gateway earth stations. To do this effectively, however, one must note that in the satellite industry, the 27.5 – 31 GHz is paired with 17.7 – 21.2 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, we request ACMA to consider extension of the AWL license regime to 17.7-21.2 GHz, so that one license type can be used effectively for the same earth station.