



Australia Communications and Media Authority

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Contact: [REDACTED] Senior Satellite Policy Manager Starlink

Re: ACMA Consultation Paper - Updating Earth Stations and PTP Coordination Rules Consultation

Starlink Australia Pty Ltd ("SpaceX" "Starlink") appreciates the opportunity to provide comments in support of the ACMA's ongoing work to streamline and expand its coordination arrangements with existing apparatus licensed services and earth stations. Starlink is pleased to re-iterate support of the ACMA's forward-looking, considered approach to spectrum management, and applauds the ACMA for adopting consumer-first, data-driven policies, that has made Australia among the world's leading economies for space industry investments, including satellite ground stations.

Starlink is a global, low-earth orbit satellite system delivering advanced satellite connectivity anywhere on earth. Australian subscribers have leveraged Starlink for reliable and low latency satellite broadband spanning everyday use cases and everyday applications, in fixed site, enterprise, and in-motion settings, and to support disaster support, remote and rural connectivity, and government resiliency. For example, during the flooding in New South Wales in 2022, Starlink services were used to restore connectivity to cut-off communities to support disaster-relief efforts. Starlink technology has also been leveraged by social impact organizations including the Foundation for Indigenous Sustainable Health to provide access to health technology in both the Muludja and Bawoorrooga Remote communities and by the Royal Flying Doctor Service to enable the first virtual emergency centre in the outback town of William Creek. Today, Starlink services over ----- across Au.

Since arriving in Australia in 2021, Starlink has worked closely with the ACMA to deliver best in class, next generation satellite broadband to Australia in lockstep with the readiness of new technologies, ranging from new form factors for Starlink consumer-side terminals¹, higher capacity second generation satellites², and robust ground network capabilities including expanded ground network investments and the addition of E-band capabilities for improved consumer backhaul³.

The ACMA's progressive and forward-looking approach to spectrum management has enabled Starlink to double down on its ground station capabilities in country to over -- distinct gateway site locations, representing --dollars to Australian industry, including local telcos, fiber partners, and construction firms. Notably, by expediently analyzing and actioning on interim arrangements for E-band ("76 GHz") FSS access on a non-interference basis, the ACMA nearly doubled the backhaul capacity available to Australian consumers through Starlink's second generation system, alongside leading administrations in the Americas and Europe. These developments have and will continue to contribute to more robust, lower latency, and higher capacity services to the Australian public.

¹ <https://www.starlink.com/videos>

² <https://www.starlink.com/public-files/Gen2StarlinkSatellites.pdf>

³ <https://www.starlink.com/public-files/StarlinkLatency.pdf>



Brief Comments

As the world's leading operator of ground stations globally by quantity and capacity within space-based broadband systems, Starlink is deeply invested in the development of efficient and effective coordination policies globally that balances the need for expeditious roll-out of new ground stations and the protections of existing ground-based radiocommunications equipment to serve consumers everywhere.

Just as terrestrial providers are deploying new antennas for densified networks to meet urban demand in city centers, next generation satellite services like Starlink are also rapidly deploying densified satellite systems and ground stations in urban areas to bring urban quality internet to satellite users everywhere. Starlink presently operates nearly a hundred dual-band antennas leveraging the Ka- and E-band in Australia, and intends to multiply the numbers of antennas and sites leveraging this spectrally efficient design. To further encourage IP transit in Australia supported by these further gateways, Starlink is also working on adding further Starlink Points of Presence in Australia, which will provide Starlink Australia consumers with the most robust and extensive ground network in the Asia-Pacific region.

Starlink generally supports the arrangements established in RALI MS45 and MS20 and provides the below for consideration:

- ***Include a more realistic “coordination” distance example between earth stations and PTP link operations in the 76 GHz band in its final RALI to clarify expected “coordination distances” for coexistence.*** While the ACMA notes in practice that a system's actual parameters will likely yield less conservative coordination distances compared to the “near-worst” distances incorporated in the RALI, a more practical cull distance is important to clarify and illustrate the minimal coordination distances necessary to sustain a higher density of services without harmful interference and encourage further deployment in efficient bands. Especially in the E-band, which can support high capacity bandwidth through the deployment of narrow and highly directional “pencil beams”, spectral efficiency is at its highest when heavily utilized and shared. Starlink also notes that adequate clarification on potential co-existence distances is also important for later-coming administrations in the Asia Pacific region considering potential E-band sharing rules.
- ***Incorporate option for use of real propagation data for efficient service coordination. Prelude to options towards a unified light licensing based software approach. –***
- ***Future satellite needs and application of similar rules for other higher frequency bands.***

As Starlink notes in its consultations responses to the ACMA FYSO from 2022-2024, next generation satellite operators have historically relied on access to globally harmonized, workhouse satellite bands, such as the Ku- and Ka-bands, designated for fixed satellite use. However, these bands are becoming increasingly congested due to the ever-increasing demand for consumer backhaul and the welcomed addition of new satellite players. In addition, next generation satellite services must deliver low latency, higher capacity, and resilient service to be fit for purpose for the needs of today's modern consumers, which come at odds with the technical realities (lower capacity, worse sharing parameters) in today's workhouse bands.



Looking ahead, Starlink and future satellite services will increasingly rely on the use of other future bands, specifically higher frequency ranges – such as the terahertz ranges and Q/V band - to meet these imminent consumer needs.

As these developments are fast-coming, the ACMA may also consider the applicability of this RALI as it pertains to new spectrum bands without existing satellite rules, with fixed service allocations. Whilst this approach can be beneficial as default in a wide range of bands, Starlink strongly encourages the ACMA's consideration of a similar approach to what is included in RALI MS45 for similarly high frequency ranges (100+ GHz) (Q/V band), with similar propagation characteristics to the E-band, as interim arrangements whilst long-term developments in these bands are underway.

Starlink again appreciates this opportunity to provide comments. Please feel free to reach out to us directly for further information.