STARLINK

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Licensing for the Provision of Non-geostationary Orbit (LEO/MEO) Satellite Services in PNG

To Whom It May Concern,

Starlink Internet Services PNG Limited (SpaceX) appreciates the opportunity to provide comments on the National Information and Communications Technology Authority's (NICTA) Public Consultation Paper on Licensing for the Provision of Non-geostationary Orbit (LEO/MEO) Satellite broadband services can have a huge social and economic impact in Papua New Guinea. As Starlink has continued to grow internationally, SpaceX continues to be inspired and motivated by the positive difference connectivity makes for communities in need. Some examples of applications around the globe that are benefiting significantly from high-speed, low latency connectivity include:

- **Connectivity for Remote Communities:** Starlink connectivity was installed on 15 institutional buildings and 45 homes in an indigenous, highly remote community in Ontario, Canada. The community is using Starlink to deliver online education, provide telehealth services, and provide connectivity to support and enable businesses in the community. Read more from CBC News.**Starlink for Education:** In Sotomo Alto, Chile, the only access to the village of 20 families is by boat. Prior to Starlink they had voice-only cellular connectivity. With Starlink, students are now using tablets provided by the Chilean education ministry to access online learning materials, participate in virtual museum visits and interact with students at other schools via video calls. Read and see a picture essay from Reuters here.
- **Natural Disaster Response:** Starlink offers unprecedented connectivity continuity during cases of natural disaster. Starlink was deployed to areas of Germany impacted by severe flooding in July 2021. As a result of the flooding, cellular and internet service in the region was compromised. Starlink connectivity supported emergency responders conducting rescue operations and provided internet access to residents, allowing them to communicate with family and authorities. Over the past few years Starlink has provided similar support following numerous disasters including the volcano eruption in Tonga, the cyclone in Vanuatu, and most recently the wildfires in Hawaii.

With the right licensing framework, SpaceX anticipates similar high-impact use cases in Papua New Guinea. This is especially true given the rural areas and islands that many people call home. Starlink services will complement existing infrastructure by connecting traditionally hard to reach areas where the cost to reach them was not financially viable. SpaceX also looks forward to working with local industry and service providers to enable and strengthen connectivity for all. The Starlink LEO constellation is technologically equipped to serve Papua New Guinea users today, and we are appreciative of the opportunity to offer our comments on the licensing of these services. SpaceX offers the following comments in response to the public consult put forth by NICTA.

Question 1: (a) Do you agree that providers of LEO satellite services in PNG should be licensed by NICTA under the Act, as other providers of network services are licensed?

(b) If not, what other authorization arrangements, if any, should apply? (c) Would any form of exemption be appropriate, and under what circumstances?

SpaceX applauds NICTA's forward-looking approach to licensing next-generation satellite systems like SpaceX's Starlink service. SpaceX agrees that LEO satellite services should be carefully considered in regulatory frameworks to facilitate rapid deployment of high-speed broadband services to customers in Papua New Guinea (PNG).

SpaceX encourages NICTA to consider adopting a license exemption for the user terminals that will be communicating with LEO satellite systems. Precedent exists for a simple license exemption model. For example, the European Conference of Postal and Telecommunications Administrations (CEPT) implemented a decision called ECC/DEC/(17)04: the Harmonized use and exemption from individual licensing of fixed earth stations operating with NGSO FSS satellite systems in the frequency band 10.7-12.7 GHz and 14.0-14.5 GHz. Over 30 European Union countries have adopted this decision, lessening the burden on both operators and administrations to license NGSO systems so long as they fall within the technical parameters of the decision. SpaceX encourages NICTA to adopt a similar approach to licensing LEO satellite systems in PNG. License exemption would be appropriate for end-user terminals that use internationally harmonized spectrum bands for Fixed Satellite Service (FSS) in 10.7-12.7 GHz and 14.0-14.5 GHz and operate with power levels and other operational conditions that are unlikely to cause harmful interference.

However, if NICTA instead pursues an alternate framework, SpaceX recommends NICTA adopt a blanket license that would allow an unlimited number of end-user terminals to operate in PNG. Blanket licensing is an efficient approach that simplifies the procedures for licensing critical hardware and services, allowing operators to deliver high-speed connectivity solutions more rapidly while reducing administrative burdens for regulatory authorities, like NICTA.

<u>Question 2</u>: Do you agree with NICTA's assessment of the current terms and conditions of individual network licenses which should apply to the provision of LEO satellite services? If not, what alternative arrangements should apply?

SpaceX seeks clarification on whether the Attachment 1, section 4, Minimum Level of Network Performance requirements is intended to apply to next-generation satellite broadband internet services like Starlink. As a general principle, given the rapid evolution of systems like Starlink and their infancy in the market, SpaceX encourages NICTA to remove overly restrictive requirements like network availability and network fault repair timelines as operators are still working to deploy the early generations of their systems. Such stringent requirements could harm consumers as they might prevent operators from rapidly deploying critical services to customers who are in hard-to-reach places or who currently have limited connectivity options. To facilitate rapid deployment and incentivize market entry for LEO operators, SpaceX recommends NICTA maintain a flexible and streamlined licensing approach and re-evaluate such network performance and network fault requirements until full deployment of these constellations is more certain and complete. This will enable operators to more rapidly meet growing customer demands for high-speed connectivity.

<u>Question 3</u>: Do you agree with the addition of a specific section in the 2011 Rule to clarify the terms and conditions of license where an individual network licensee chooses to provide LEO satellite services, as set out in Attachment 1 to the Discussion Paper? If not, what changes would you recommend?

SpaceX commends NICTA for their pragmatic approach to licensing LEO systems and agrees with NICTA's assessment that LEO satellite services merit further regulatory analysis. SpaceX encourages NICTA to maintain as flexible of a licensing framework as possible to account for the rapid pace of innovation occurring in the LEO and NGSO satellite industry including license exemption or blanket licensing for end-user terminals, low and predictable spectrum and licensing fees, and clear timelines for processing licenses.

<u>Question 4</u>: Do you think that there should be some constraints on where LEO services should be permitted to be located in PNG, such as, for example, only in areas where telecommunications services are non-existent or are inadequate? Please give your reasons.

SpaceX does not support any restrictions or constraints on the operations of LEO services in PNG. SpaceX's goal is to provide high-speed, low latency internet to all customers in PNG, regardless of their location and the availability of similar services in their area. Starlink is a complementary service which will fill connectivity gaps, rather than replacing existing services, but while a primary customer base for Starlink service includes consumers in remote and rural areas, SpaceX currently has full technical coverage of PNG and can serve the entire country. As a result, SpaceX is equally capable of serving urban, suburban, and rural customers with high-speed, fiber-like connectivity. Since Starlink would often connect schools, telehealth outposts, etc. in rural areas, it is important that they can be connected to their head offices in the urban areas on the same network.

SpaceX believes that all customers in PNG should have access to Starlink service to meet their residential, business and government connectivity needs regardless of their location. Further, restrictions on service locations for LEO satellite operators will primarily harm consumers as it will reduce competition in the market and limit choices for end-users. The entry of additional providers in the market can help to drive down prices for consumers and incentivize technological innovation, creating a race-to-the-top effect. SpaceX firmly believes that NICTA should neither restrict nor constrain LEO services in PNG.

<u>Question 5</u>: Irrespective of the answer to Question 4, should LEO services be structured and managed within the Universal Access and Service (UAS) Scheme administered by NICTA, or be eligible for inclusion in the UAS?

In order to be able to provide more meaningful comments, SpaceX seeks clarification on the specific requirements and structure of a UAS scheme as it relates to LEO services. In principle, SpaceX believes that participation in the Universal Access and Service Scheme could potentially make sense if the terms are fair and reasonable and allows for UAS funds to be used in a manner that harnesses the benefits of LEO satellite systems. However, additional information would be required to determine if this program would be suitable for LEO satellite systems.

Ultimately, SpaceX is eager to provide high-speed, low latency internet to people in need of reliable connectivity around the world. This is especially true for places where internet is expensive, unreliable, or entirely unavailable. Starlink services are key to social and economic development as well as emergency preparedness and response. SpaceX is committed to facilitating many of the UN Sustainable Development Goals. This includes Reduced Inequalities, Industry, Innovation, and Infrastructure, and Climate Action.

SpaceX appreciates the opportunity to provide these comments on NICTA's public consultation document. As NICTA develops a licensing framework for LEO satellite systems, SpaceX encourages it to adopt flexible policies that ensure that all consumers can benefit from high-speed, low-latency broadband connectivity, no matter where they are. SpaceX welcomes the opportunity to speak with NICTA further about its licensing framework and to share its experience with licensing Starlink services as a global satellite service provider.