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| **To:**  **Independent Communications Authority of South Africa (ICASA)**  Eco Point, 350 Witch-Hazel Avenue,  Centurion, 0144  Pretoria, South Africa    Attention: Mr. Mandla Mchunu |  | **Date:**  11/07/2024 |

**Object: Leaf Space Submission to the ICASA Consultation on the proposed new Licensing Framework for Satellite Services**

To the kind attention of Mr. Mandla Mchunu and the Independent Communications Authority of South Africa (ICASA),

With this document Leaf Space respectfully submits its responses to the "Consultation on the proposed new Licensing Framework for Satellite Services", notice 2678 of 2024.

Leaf Space is a Ground Segment services provider operating a network of Earth stations in 14 different countries in 6 continents, currently supporting more than 100 satellites in Low Earth Orbit (LEO).

Leaf Space would like to express its gratitude to ICASA for providing the opportunity to contribute to the Republic's regulatory-making process. Leaf Space looks forward to a clear, lean, balanced and effective regulatory framework that will enable satellites to efficiently and easily access South Africa-based Earth stations.

Leaf Space is available to support ICASA in this endeavor and eager to share additional contributions and information as deemed necessary.

The Leaf Space Regulatory team can be contacted at [licensing@leaf.space](http://?).

**QUESTION 2 – Do you agree with the exclusions of radio navigation satellite services, amateur satellite services, earth exploration, space research satellite services and radio astronomy services indicated above and others if applicable? If not, please explain your reasoning and propose an alternative to this proposal.**

Leaf Space agrees with the exclusion of the Radio Navigation Satellite Service (RNSS), Amateur Satellite Service (AmatSS), Earth Exploration Satellite Service (EESS), and Space Research Service (SRS) and Radio Astronomy Service (RAS) from the scope of this inquiry. Additionally, Leaf Space considers appropriate to explicitly exclude as well the frequencies allocated to the Space Operation Service (SOS), overlapping with allocations to EESS and SRS, such as in the 2025-2110 MHz (Earth-to-space) and the 2200-2290 MHz (space-to-Earth) allocations.

The exclusion of these radiocommunication services is appropriate as satellites operating within these services have a different frequency usage compared to that of FSS, MSS, and BSS, with a lower spectrum occupancy and increased possibility to coexist among each other and with other terrestrial services. Further effective and efficient use of spectrum for SOS, SRS, and EESS exists, given the possibility for multiple NGSO spacecraft in these services to operate by sharing the same Earth station systems as operated by third-party ground segment services providers, many of which are or plan to be operational in South Africa.[[1]](#footnote-2),[[2]](#footnote-3),[[3]](#footnote-4),[[4]](#footnote-5),[[5]](#footnote-6),[[6]](#footnote-7),[[7]](#footnote-8)

South Africa can play a pivotal role in the support of satellite missions thanks to its southern latitude: a streamlined regulatory access to South African-based Earth stations for SOS, EESS, and SRS satellites can benefit the global space community at large, at the price of a relatively low use of spectrum allocated.

With the exclusion of these radiocommunication services from this inquiry in mind, Leaf Space kindly invites ICASA to consider any regulatory decision that, if implemented for other satellite radiocommunication services, might impact all satellite operations.

**QUESTION 3 – Do you agree with the proposed approach of having a separate licence/authorisation (where applicable) for each segment of the Satellite Communication value chain? Please elaborate:**

Leaf Space supports the clarity that would stem from having separate licenses/authorizations for each segment of the satellite communication value chain. This can allow flexibility when multiple operators/stakeholders are involved across the chain.

Nevertheless, two important considerations must be made:

Leaf Space invites ICASA to identify a streamlined process when a single entity plans to obtain authorizations for two or all of the authorizations envisioned (Gateway, User Terminals, Space Segment registration), to avoid creating a burden for actors that plan to do so.

When it comes to the Registration of the Space Segment, it is important to clarify requirements and procedures for the different radiocommunication services to be covered. In particular, if this has to exclude SOS, EESS, SRS, RNSS, and AmatSS, this must be made clear and easy to navigate. An approach tailored to radiocommunication services can ensure streamlined processes and ease for operators that do not plan to deliver services to end users in South Africa.

**QUESTION 8 Please provide your comments and details of the best practices in other jurisdictions to fulfill the intentions of the Authority as indicated in the above section. Furthermore, considering the provision set out in the Astronomy Geographic Advantage (AGA) Act of 2007, and the requirements of the Radio Quiet Zone, what measures and techniques do you propose to be employed in mitigating the possible interference that may be caused by the satellites within the Astronomy radio frequency bands in South Africa?**

If ICASA decided to proceed with the establishment of an Authorized List of Space Stations (ALOSS), the following should be taken into consideration:

1. **Satellite systems require gateway access prior to successful international spectrum coordination.**

Satellite systems require advanced planning, with the certainty of access to a specific gateway or market being a pivotal need that can arise even years prior to reaching successful international spectrum coordination. Introducing successful coordination as a requirement to be included in the ALOSS, as suggested as part of Appendix A of the Consultation document, could inadvertently create significant barriers for satellite operators.

A suggested solution, as implemented by other Administrations (e.g., Australia[[8]](#footnote-9) or Portugal), is that of authorizing spacecrafts whose operators commits to respecting ITU Radio Regulations prior to coordination being completed. Operators can commit to and ensure interference avoidance, as well as ensure that their system will have the possibility to stop transmitting from/to any given location as soon as requested if the needs arises.

1. **Many satellites conclude their missions prior to successful ITU coordination**.

For EESS, SOS, and SRS allocations, in particular, it should be noted that many satellite operators may not be able to comply with the requirement of complete coordination.

Frequencies as the 2025-2200 MHz (Earth-to-space), 2200-2290 MHz (space-to-Earth), or 8025-8500 MHz (space-to-Earth) are defined by the Radio Regulations as “not subject to the coordination procedure under Section II of Article 9”. NGSO satellites utilizing these frequencies are often launched without having completed their coordination process, being authorized by administrations internationally to launch with their ITU filing being just at the Advanced Publication Information (API) stage. Many missions conclude before the expiration of their respective initial API submissions (set to 7 years by the Radio Regulations), meaning operators end up not notifying their spacecraft to be added in the ITU Master International Frequency Register. Whilst not envisioned by the Radio Regulations, this behavior is not in contravention of the same, and has become an established practice internationally.

If an ITU requirements must be considered for the ALOSS and for the EESS, SOS, and SRS bands, then ICASA could consider the status of API/A being reached, as aligned with other administrations (for instance: Australia, Bulgaria, Mexico, New Zealand). Waiting for a satellite to reach the stage of API/A is not burdensome for a satellite operator, and the stage ensures that the filing has already undergone a minimum level of scrutiny by the ITU. This would not create a barrier that could negatively impact operators planning to rely on South African Earth stations.

1. **Registration in the ALOSS should allow third parties to register spacecrafts they plan to work with from South Africa.**

As suggested in the consultation text, ICASA should allow third-party operators, such as ground segment service providers, to register a spacecraft on behalf of the satellite operator, rather than requiring the latter to complete the registration. This would make the process as frictionless as possible for foreign operators and enable easier access to South African Earth stations and the South African market by means of leveraging local expertise. Such flexibility is already permitted in countries like Canada[[9]](#footnote-10) and Mexico[[10]](#footnote-11), and adopting similar practices would help South Africa stay competitive in attracting satellite operators and ground segment providers.

1. [https://www.ksat.no/ground-network-services/the-ksat-global-ground-station-network/](http://?) [↑](#footnote-ref-2)
2. [https://docs.aws.amazon.com/ground-station/latest/ug/aws-ground-station-antenna-locations.html](http://?) [↑](#footnote-ref-3)
3. [https://rbcsignals.com/ground-station-as-a-service/](http://?) [↑](#footnote-ref-4)
4. [https://leaf.space/](http://?) [↑](#footnote-ref-5)
5. [https://atlasspace.com/federated-ground-network/](http://?) [↑](#footnote-ref-6)
6. [https://www.infostellar.net/service/GS](http://?) [↑](#footnote-ref-7)
7. [https://www.viasat.com/government/antenna-systems/real-time-earth/](http://?) [↑](#footnote-ref-8)
8. [https://www.acma.gov.au/sites/default/files/2022-08/BOP%20Submission%20Earth%20Station\_AWL%20update.pdf](http://?) [↑](#footnote-ref-9)
9. [https://ised-isde.canada.ca/site/spectrum-management-telecommunications/en/learn-more/key-documents/procedures/client-procedures-circulars-cpc/cpc-2-6-04-procedure-submission-applications-approve-use-foreign-licensed-satellites-canada](http://?) [↑](#footnote-ref-10)
10. [https://inventariotramites.ift.org.mx/mitweb/#!/tramite/UCS-04-005](http://?#!/tramite/UCS-04-005) [↑](#footnote-ref-11)