
Rivada Space Networks:
Response to ICASA consultation
on the proposed new Licensing
Framework for Satellite Services



1. Introduction of Rivada

Rivada Space Networks (“Rivada”) is the company building the world’s first truly global non-geostationary orbit (NGSO) satellite point-to-point and point-to-multipoint, low latency and high security network, termed as the Rivada Outernet. Uniquely different from other NGSO operators, we aim to provide data connectivity solutions to businesses and governments (and not Internet over the satellite), on a wholesale basis without the use of gateways or connection to the internet.

The Outernet comprises of: a secure low-Earth orbit satellite constellation, and a minimal ground segment, consisting of Satellite and Network Control Centres, all of which will be operated by Rivada; and a worldwide user segment with user terminals from multiple vendors which will be obtained, installed and operated by Rivada’s locally licensed partners. Rivada’s space segment will consist of 300 satellites with pole-to-pole reach, with a planned expansion to 600 satellites, offering latencies as good as terrestrial fibre. The combination of Rivada’s fully laser-linked constellation and intelligent on-board routing allows it to offer gateway-less communication from the point of origin to the destination, with no dependency on third-party infrastructure or terrestrial networks.

The system has the capability to provide communications in the full Ka-band spectrum in the following ranges, and will in any case comply with the national frequency allocation plan:

- 17.3-20.2 GHz for Downlink
- 27.5-30.0 GHz for Uplink

As stated above, Rivada will operate the satellite system while the operation of the user terminal network and provision of services to end users will be handled by Rivada’s locally licensed partners. Rivada network will not interconnect traffic to the internet directly, but local service providers may consider doing so under their own decision and under their own control and responsibility.

2. General Comments and observations

Rivada would like to thank the Independent Communications Authority of South Africa (ICASA) for initiating this consultation on the proposed new Licensing Framework for Satellite Services. We commend the Authority for its proactive approach in addressing the evolving landscape of satellite communications, which is critical for supporting the expanding satellite ecosystem in South Africa, particularly the emerging NGSO systems.

Rivada agrees with the overall objectives and policy principles outlined in the consultation document. We particularly support the effort to develop a transparent and streamlined regulatory framework that establishes regulatory certainty for satellite operators in South Africa. In addition, we commend the Authority’s commitment to aligning this framework with the African Telecommunications Union (ATU-R) recommendation on harmonising the satellite regulatory environment across the region.



Rivada would like to make a general comment under this section and seek clarification on certain points and topics. While we agree with the overall direction and objectives outlined in the proposed framework, there are specific areas where additional details would help to provide a clearer understanding of the implementation and regulatory implications. We believe that these clarifications will ensure that our response addresses the feedback and information that the Authority is seeking.

Clarification 1: Definitions and terminology

A. For the avoidance of confusion, Rivada seeks to clarify the definition of “Space Segment” as outlined in Section 1, on page 8 of the consultation document. We understand the current definition:

“Space Segment” - means the ground facilities providing the tracking, telemetry, and telecommand (TTC) functions and logistics support for the satellites.

to instead refer to:

“Space Segment [ground control]” - means the ground facilities providing the tracking, telemetry, and telecommand (TTC) functions and logistics support for the satellites.

This proposed clarification aligns with industry standards, where the term "Space Segment" typically refers to the satellite system in orbit, while "ground control" more accurately describes the associated ground facilities providing TTC and other support.

B. In Section 1, on page 6, the term “Ground Segment” is defined as:

The Ground Segment refers to the network of gateways. Gateway earth stations link one or more terrestrial networks and the satellites.

To avoid confusion and to align with industry standard terminology, Rivada suggests that the definition of *Ground Segment* be amended to reflect the broader scope of ground facilities. In addition to gateways, the Ground Segment also refers to *Network Control and Satellite Control Centres*. Therefore, we propose the definition be updated as follows:

"Ground Segment" - The Ground Segment refers to the network of gateways, Network Control Centres, and Satellite Control Centres, Gateway earth stations link one or more terrestrial networks and the satellites.

Clarification 2: Responsibilities and Licensing for Satellite Operators and Local Partners

The next clarification concerns the various licences, authorisations, and registrations mentioned in the consultation, specifically regarding the responsibilities of foreign satellite operators intending to provide satellite capacity to their local partners in South Africa. We seek to clarify the exact responsibilities required of a foreign satellite operator to ensure that local partners can procure satellite capacity and provide electronic communications services (ECS) and/or electronic communications networks (ECN) in South Africa.

As stated in the introduction of our response, and within the context of this consultation, Rivada will act as a (foreign) *Satellite Capacity Provider*.



While Rivada strongly believes that an *Open Skies policy* is the best approach (refer to our comments on Question 8), we will proceed with the assumption that the Authority adopts the "Proposal on Space Segment Authorization in South Africa." In this context, we seek clarification and confirmation on the following points:

A) Our understanding is that the foreign satellite operator requests entry into the *Authorised List of Space Stations* to provide satellite capacity over South Africa. This registration enables the operator to offer its satellite capacity over the country to its locally licensed partners.

B) We understand that our local partners, who will be providing services to end-users using Rivada's satellite capacity, will be the entities required to obtain the relevant I-ECS and/or I-ECN service licenses. Section 10.2, on page 29, states: "According to provision 31(2) of the ECA, a radio frequency spectrum license is required in addition to any service license contemplated in Chapter 3, where the provision of such service entails the use of radio frequency spectrum." Rivada interprets this to mean that the I-ECS and/or I-ECN license holders (i.e., our local partners) will be responsible for acquiring the necessary *radio frequency spectrum license*. Is this the correct interpretation?

C) Further, in Section 10.2, page 29, it is stated: "Once included in the Authorised List of Space Stations, a foreign entity will need additional radio frequency spectrum [*license*] either by itself or through an already licensed Individual Electronic Communications Network License holder (I-ECNS) provider." In line with point b), we understand that the reference to "through an already licensed I-ECNS provider" relates to Rivada's local partners, who will provide services to end users. Can the Authority confirm that this understanding is accurate?

D) Section 9, on page 21, states: "A licence may be required for the sale and installation service of satellite user terminal equipment in South Africa. Applicants are only required to register with the Authority to obtain a Radio Dealer Certificate through a procedure outlined in the National Spectrum Radio Regulations." The wording "A license may be required" is somewhat unclear, as the consultation document does not specify under what circumstances this license may or may not be required. We kindly request further clarification of the conditions under which such a license would be necessary.



3. Rivada's Responses

QUESTION 1

These are the policy principles from the ATU that ICASA seeks to align with. Kindly provide comment(s) on the proposed policy principles and any further recommendations listed in the above section? (p. 14)

Response to Question 1:

Rivada agrees with the policy principles from the African Telecommunications Union (ATU) that ICASA seeks to align with in this consultation. We fully support the harmonization of satellite regulatory frameworks across the region, as it ensures consistency and coherence for operators providing services in multiple jurisdictions.

We further encourage the Authority to adopt an approach that prioritises a streamlined and flexible framework for Satellite Services. Such an approach will reduce regulatory burdens, making it easier for new entrants to participate in the market, thereby fostering healthy competition and encouraging further investment in the communications sector. This will be crucial in expanding access to cutting-edge satellite services and promoting the public interest through improved connectivity.

Additionally, we advocate for a less cumbersome and less costly process in the authorization of satellite services. Emerging NGSO satellite services are uniquely positioned to address the digital divide by offering solutions that can bridge the gap in connectivity in underserved and unserved areas and ensure secure communications as well as backup for undersea cables. By enabling more efficient market access through flexible licensing, these satellite services can play a key role in enhancing broadband availability and accelerating digital inclusion.

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. (p. 15)

Response to Question 2:

Rivada agrees with the exclusion of radio navigation satellite services, amateur satellite services, earth exploration, space research satellite services, and radio astronomy services, as indicated in the consultation. We understand that the Authority's intention is to focus on emerging satellite services providing high data rates connectivity, and we believe this is the right decision. This targeted approach will allow the new Licensing Framework for Satellite Services to concentrate on the rapidly evolving and innovative satellite services based on NGSO systems that can provide enhanced connectivity and data transmission.



However, we would like to seek clarification regarding the exclusion of the frequency ranges 17.3-18.3 GHz and 18.8-19.7 GHz from this consultation. These frequency ranges are designated on a co-primary basis in both the ITU Radio Regulations (Article 5) and South Africa's National Frequency Allocation Table. Given the importance of these frequencies for NGSO satellite systems operating in the Ka-band, Rivada kindly requests that these frequency ranges be included and made available, as appropriate, for use by NGSO systems in the new licensing framework.

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. (p. 17)

Response to Question 3:

While Rivada agrees with ICASA's approach of having separate licenses or authorisations for each segment of the Satellite Communication value chain, we believe that requiring a foreign-registered space segment to be registered could be counterproductive to the widely adopted Open Skies policy embraced by many countries globally. This policy allows easier access to satellite resources across borders without imposing additional regulatory barriers on foreign satellite operators. By adhering to the Open Skies approach, the Authority would further encourage competition and innovation, attracting more satellite operators and service providers to the South African market (see further comments on this to response to question 8).

That said, Rivada supports the proposed approach of having separate licenses or authorisations for user terminals (User-Terminal network licence) and gateways (Satellite Gateway Earth Station Licence). We understand that this approach is designed to ensure regulatory clarity and accountability across the entire value chain. By assigning distinct licenses to different segments, the Authority can clearly define the responsibilities of each entity involved in satellite communications. This approach is also an international best practice that reflects the reality of the industry as it is rare to see a completely integrated value chain for satellite services. Furthermore, it encourages different players to specialise in their respective segments while at the same time also promoting competition by opening markets to different segment providers and operators.

QUESTION 4

Please provide your comments on the proposals in the preceding paragraph and the duration of the Gateway Earth Station licences. (p. 18)

Response to Question 4: No comment



QUESTION 5

Please comment on the above-mentioned alternative proposals to levy the spectrum fees for Gateway Earth Stations and indicate your preferred option. The Authority understands that there are other spectrum fee calculation methodologies used elsewhere in the world. Please give details of the methodologies which you believe would be most suitable for South Africa. (p. 21)

Response to Question 5: No comment

QUESTION 6

Kindly comment on the section above and on the proposal for blanket licensing with a fee for a set number of terminals under a new proposed licence regime to be referred to as "Satellite User Station Network Licence". If possible, please provide a breakdown of the number of terminals with the corresponding spectrum fee values in South African Rands. (p. 23)

Response to Question 6:

Rivada agrees with the proposed approach of blanket licensing for satellite user terminals under the new "Satellite User Station Network Licence" regime. This method is more efficient and less administratively burdensome, as it eliminates the need for individual terminal licenses. It also provides flexibility for locally licensed service providers operating user terminal networks that use satellite capacity from foreign operators.

We believe that this approach is particularly advantageous for emerging NGSO satellite systems, which may involve large numbers of user terminals across diverse locations. The flexibility offered by blanket licensing will enable faster deployment of satellite services, particularly in underserved and unserved regions of South Africa.

Regarding the breakdown of terminals and corresponding spectrum fee values, Rivada recommends that the Authority set a fee structure that balances revenue generation with affordability, ensuring that service providers are not overburdened by excessive fees. The specific fee values should reflect the scale of deployment and international benchmarks for similar licensing regimes.

To ensure the inclusion of user terminals that communicate with satellites for data transport services, and not just broadband, we propose that ICASA modifies the definition of the license as follows (changes are highlighted in yellow):

"This licence would authorise access to spectrum for user terminals to communicate with satellites to deliver satellite connectivity on aircraft or ships, as well as to ground-based terminals delivering services such as residential and business broadband; private networks; data transport; and IoT applications."



This modification reflects the broader scope of services that satellite systems provide, including data transport services in addition to broadband connectivity, which is essential for a variety of enterprise and government applications.

QUESTION 7

Kindly comment on the appropriateness of using regulation 37 of the ICASA radio regulations (“Recognition of licences issued by other countries”) to recognize ESIM licences issued by other countries. (p. 23)

Response to Question 7:

Rivada supports the use of Regulation 37 of the ICASA radio regulations, which allows for the recognition of Earth Stations in Motion (ESIM) licenses issued by other countries. This approach aligns with international best practices and promotes regulatory harmonisation, which is particularly important in the context of satellite services that often operate across multiple jurisdictions.

Recognising ESIM licences issued by other countries would reduce administrative burdens for operators and local service providers, allowing them to deploy services more quickly and efficiently within South Africa. Furthermore, this would foster greater cooperation between regulators and encourage the seamless provision of satellite services across borders, benefiting both service providers and end-users by ensuring faster service rollouts and reducing operational costs.

Rivada believes that this approach would also encourage competition and innovation, as operators would not face additional barriers to entry when deploying ESIM services in South Africa, resulting in improved connectivity overall.

QUESTION 8

Please provide your comments and details of the best practices in other jurisdictions to fulfil 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? (p. 30)

Response to Question 8:

As expressed in our answer to Question 3, we believe that an Open Skies approach would adequately support the framework’s objectives while minimising the risk of unintended consequences. We encourage further consideration of this approach and its potential benefits for the industry.

In an Open Skies environment competition is higher, as satellite operators do not have to go through regulatory processes and can offer capacity to local service providers without additional market access hurdles.



This in turn means that service providers can choose amongst a higher number of satellite operators, resulting in lower prices and better quality of service, which ultimately benefits the end users in South Africa in this case. Furthermore, countries with Open Skies policies benefit from greater economic growth than those who introduced additional national market access requirements as variety of satellite capacity providers contribute to improvement of essential telecommunications services and connectivity, as well as create work opportunities, and an economic environment that stimulates investment¹. Additionally, the Open Skies policy is an international general practice, based on mutual recognition, which generates all the benefits listed above. Moving away from it might break mutual recognition, which might lead to other countries retaliating with their own sets of restrictions, a step that would ultimately undermine national space industry.

If ICASA still believes that there is a genuine need to revise the Open Skies policy, Rivada would like to stress that the introduction of a Space Segment Registration should be as straightforward as possible and remain a streamlined administrative procedure and not a license, with minimum to no fees applicable, and no requirements to establish a local vehicle or any other obligations for a foreign satellite operator. This approach aligns with the broader goal of enhancing satellite communication infrastructure and facilitating market entry. It would also provide flexibility, encourage investment, and potentially lead to more dynamic and competitive satellite services. It is crucial for ICASA to ensure that the new framework does not inadvertently introduce barriers or complications that could hinder the sector's growth.

We appreciate that ICASA is considering aligning the proposed registration with the lifespan of the satellite, as outlined in the ATU-R Framework. Additionally, we support the consideration of international best practices approach, which allows for a period of up to 15 years with renewal options. We encourage ICASA to maintain this approach to ensure that foreign operators can continue providing services without undue regulatory burdens.

Rivada recognises the importance of protecting the Astronomy Geographic Advantage (AGA) Act of 2007 and adhering to the requirements of the Radio Quiet Zone (RQZ) in South Africa. We believe that the best approach to mitigating potential interference caused by satellites operating within astronomy radio frequency bands is to follow the existing ITU Radio Regulations of the ITU-R Recommendations. The ITU-R has established internationally recognised regulations and guidelines for the protection of radio astronomy, particularly in the context of satellite communications. By combining ITU-R standards and close cooperation between satellite operators and the astronomy community, Rivada believes that it is possible to protect South Africa's valuable radio astronomy assets while allowing for the continued development of satellite communications.

¹ GSOA, Market Access for Satellite Communications ([2017-10-Market-Access-for-Satellite-Communications.pdf](https://www.gsoa.com/2017-10-Market-Access-for-Satellite-Communications.pdf) ([gsoasatellite.com](https://www.gsoa.com)))



QUESTION 9

Please provide proposals on the role the Satellite operators can play in ensuring that broadband connectivity reaches the areas of the country in terms of community networks with Satellite connectivity as a backhaul. Kindly provide a regulatory solution that can be applied by Satellite operators to address the shortcomings of terrestrial networks in providing to unserved and underserved areas of the country. This may include collaboration with government programs to reach out to those unserved and underserved areas of the country.

Response to Question 9:

Roll-out obligations are designed for terrestrial networks operators requiring them to have a minimum geographical or population coverage as a condition of their licences to prevent them from prioritising high-revenue areas, and dense population areas leaving gaps in less profitable regions.

Satellite services, on the other hand, are intended to provide coverage in areas that terrestrial networks cannot serve efficiently. Imposing roll-out conditions on satellite operators could thus hinder their ability to deploy networks effectively.

A more flexible regulatory approach would be better suited, encouraging satellite deployment in underserved regions without imposing unnecessary constraints. This will help address connectivity gaps and ensure satellite services reach the communities that need them most or whose reliance on terrestrial connectivity or undersea cables makes them vulnerable to connectivity outages in cases of natural disasters or infrastructure sabotaging.

We believe that satellite operators can play a critical role in extending connectivity to unserved and underserved areas of South Africa, particularly by leveraging their technology to support government programs aimed at bridging the digital divide. To support these efforts, the government could introduce incentives such as subsidies, tax breaks, or grants for satellite operators that contribute to the development of connectivity infrastructure in underserved areas. By integrating satellite services into national connectivity plans, the government could facilitate more robust and sustainable solutions that reach rural and isolated communities.



Additionally, we wish to make some comments and seek clarification on some of the information required for registration consideration in Appendix A: Registration of Space Station Network to the Authorised List of Space Stations (ALOSS)

Give the full name and address of the applicant and a contact name, telephone number, fax number, and email address.

Comment: We agree with the requirement to provide the full name, address, and contact information (including telephone, fax, and email) of the applicant. We understand that the "applicant" is the satellite operator responsible for submitting the registration application to ICASA. Is this the correct understanding? if so, see the comment below.

Describe the nature of the relationship between the applicant and the satellite operator.

Comment: Rivada understands that a satellite operator employee with the authority to submit market access applications or alternatively authorized by the operator to submit notifications or documents on its behalf can be the applicant on satellite operator's behalf. We kindly ask ICASA to confirm this interpretation.

Give the name of the satellite and the satellite operator. Include the name(s) of the satellite(s) as notified to the ITU, as well as the commercial name(s) of the satellite(s).

Comment: We agree with the request to provide the name of the satellite and operator as registered with the ITU, along with the commercial name. However, we seek confirmation that the commercial name alone will not be sufficient and that both the ITU and commercial names must always be provided.

Indicate the remaining life expectancy of the satellite.

Comment: No clarification required.

Name the administration responsible for the satellite and indicate whether the administration is a member of the ITU.

Comment: No clarification required.

Give the dates that the administration coordinated and notified the satellite network, in its current or proposed operating condition, to the International Telecommunication Union (ITU), and provide the ITU BRIFIC special section reference number and publication date for both filings. If the satellite network has not yet been notified or if the notice is not yet published, provide a list of administrations with which coordination is required and information describing the status of coordination for each of these administrations.



Comment: The coordination status between administrations contains sensitive information, and it may be inappropriate for an administration to request details regarding the coordination process between other sovereign entities. Furthermore, this information does not pertain to the operations within other jurisdiction. As per ITU regulations, a filing must be published before a list of administrations requiring coordination is established, making this information unavailable until the publication stage.

For geostationary orbit satellites, provide the orbital position of the satellite in degrees West longitude.

Comment: N/A.

For non-geostationary orbit satellites, provide the number of orbital planes, the number of satellites in each orbital plane, the angle of inclination of each orbit, and the altitudes (in kilometers) of the apogee and perigee of the satellites.

Comment: No clarification is required.

Describe the extent and nature of the satellite coverage in the country. Include coverage maps if necessary. List the frequency bands that will be used by the satellite and indicate which bands the associated earth station(s) will use in the country.

Comment: No clarification is required.

Describe the types of services to be provided in the country.

Comment: No clarification is required.