

Myriota

Myriota Pty. Ltd.
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**To Independent Authority of South Africa
To the attention of Mr. Mandla Mchunu**

**By email to the address:
satlicensing@icasa.org.za**

November 11, 2024

Myriota is pleased to respond to the consultation conducted by Independent Communications Authority of South Africa on the licensing framework for Satellite Services. Myriota is the global leader in low-cost, low-power, secure, direct-to-orbit satellite connectivity for the Internet of Things (IoT).

Founded to revolutionize IoT by offering disruptively low-cost and long-battery-life global connectivity, Myriota is based in Adelaide, a focal point of the Australian space industry and home to the Australian Space Agency. We have a growing portfolio of over 100 granted patents, supported by major Australian and international investors. With a deep heritage in telecommunications research, Myriota achieved the world's first transmission of IoT data direct to a nanosatellite in 2013 and has since made this groundbreaking technology commercially available to partners worldwide.

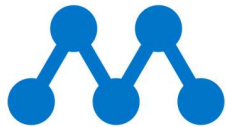
Myriota's service brings a wide range of benefits to IoT users globally, most notably the ability to track thousands—potentially millions—of devices attached to almost anything. Our technology addresses major IoT network deployment challenges, such as security, control, design, and cost. Our technical solution and chosen frequencies are ideally suited to deliver IoT services for private enterprises, government departments, defense, utilities, and more.

Myriota replies to the questions asked by the Authority as follow:

QUESTION 1

Kindly provide comment(s) on the proposed policy principles and any further recommendations listed in the above section?

The proposed policy principles reflect a well-rounded aligning with international standards and addressing the practicalities of satellite services and operations. Below are comments on each principle, along with additional recommendations for enhancement.



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Harmonizing licensing processes across ATU Member States will promote regional development, improve cross-border satellite operations, and reduce regulatory fragmentation, making it easier for providers to operate across multiple jurisdictions. Establishing a central coordination body could further support Member States in aligning their processes, sharing best practices, and expediting harmonization.

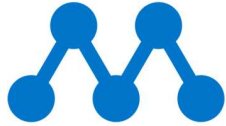
Requiring licensing to adhere to ITU's guidelines on radio spectrum and orbital resources ensures that Member States follow global standards, promoting equitable resource access and reducing interference risks. Regular training sessions and workshops for regulatory authorities would be beneficial to keep them updated on ITU procedures and international developments in satellite regulations.

Transparency in regulatory frameworks is essential for attracting investment, as clear rules foster predictability and trust, supporting long-term planning in satellite infrastructure. Publishing detailed guidelines and timelines for licensing processes, including estimated processing times, required documentation, and associated fees, would improve transparency and help investors make informed decisions.

Streamlining licensing for domestic user terminals via a blanket licensing approach is efficient for handling high volumes of satellite terminals, reducing administrative burdens, and speeding up market entry for services. A clear policy framework for blanket licensing should be established, outlining minimum technical standards to ensure compliance without requiring individual terminal authorizations.

Designating frequencies for satellite user terminals in accordance with the ITU Table of Frequency Allocations promotes compatibility with international norms, reduces interference potential, and supports efficient spectrum use. Conducting periodic reviews of frequency allocation needs, in consultation with industry stakeholders, would help address evolving demands while ensuring alignment with ITU standards.

Setting reasonable spectrum fees that account for increased bandwidth usage, especially at higher frequencies, can support fair spectrum access and generate revenue for further regulatory development. A tiered fee structure based on bandwidth usage and frequency band characteristics could provide flexibility for smaller operators while ensuring larger operators contribute proportionately.



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Additional recommendations include encouraging regional coordination for cross-border satellite services, which would streamline regulatory requirements for operators serving multiple countries. Adopting a technology-neutral approach in licensing frameworks would allow flexibility in incorporating emerging satellite technologies. Moreover, capacity-building initiatives for national regulators through technical training would enhance their ability to manage complex satellite licensing, particularly for high-frequency and high-bandwidth systems.

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.

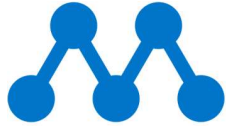
First of all, Myriota wishes to underline the importance of the use of the sub -1 GHz band, respective identified in the table as non voice NGSO MSS for the IoT over satellite services (137-138 MHz, 148-150.05 MHz; 399.9 -400.05 MHz, 400.15-401 MHz)

The sub-1 GHz bands offer an ideal balance of penetration, reliability, and bandwidth efficiency, making them uniquely suited for connecting remote and rural IoT devices. This is especially significant in regions like South Africa, where wide-area coverage is required for utilities, agriculture, and infrastructure monitoring in remote locations.

Our system enables devices to operate with minimal power requirements, making it ideal for deployment in remote regions where energy-efficient solutions are necessary.

Globally, IoT applications are growing rapidly, and MSS in the sub-1 GHz bands are at the forefront of providing connectivity for billions of IoT devices. Myriota has pioneered the utilization of these bands for direct-to-satellite IoT communication, and access to this spectrum is fundamental to our business model. Our customers rely on the robustness of sub-1 GHz MSS to transmit critical data over long distances in challenging environments. Ensuring the continued availability of this spectrum for MSS is essential to supporting the growth and innovation potential of the IoT ecosystem globally, including within South Africa.

Regarding the exclusion of radio navigation satellite services, Myriota is of the opinion that South Africa should closely align with the Table of Frequency Allocations of ITU Radio



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Regulations Article 5. The frequency bands listed in this consultation paper should follow internationally consistent frequency allocations.

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.

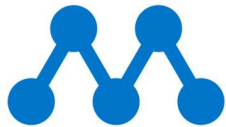
While Myriota agrees that Gateway Earth station and user terminals can be licenced separately, the registration process of the space segment seems to be a superfluous and unnecessary measure. The latter is commented in the question relating to the registration process.

Issuing separate licenses for gateways and terminals is a practical approach that addresses the distinct operational, regulatory, and technical requirements of each segment. Gateways, as ground-based infrastructure that interconnects satellite networks with terrestrial networks, often require specific technical and safety standards due to their higher power, location-specific setup, and potential for broader spectrum use. These installations often need close regulatory oversight because they are critical points of connection for satellite traffic and can impact multiple services and users. By licensing gateways separately, regulators can ensure compliance with technical standards, spectrum management, and other operational safeguards specific to high-power, high-traffic infrastructure.

For user terminals, a separate licensing or authorization—preferably through a blanket license approach—would streamline access for large volumes of terminals while still ensuring compliance with regulatory standards. Blanket licensing allows for an efficient, scalable way to authorize a high number of terminals without the need for individual terminal registration, benefiting both operators and end-users through faster deployment and reduced administrative overhead.

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



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the number of terminals with the corresponding spectrum fee values in South African Rands.

The proposal for a "Satellite User Station Network Licence" with blanket licensing and a fee for a set number of terminals is an optimal approach, particularly for IoT over satellite devices. This method efficiently addresses the needs of IoT networks, which often consist of large volumes of low-power, low-data terminals intended to operate at minimal cost, enabling connectivity in remote and unconnected areas. By implementing a blanket licensing regime, regulatory authorities can simplify the process of authorizing these devices, avoiding the administrative burden of individual terminal registration while still ensuring that these networks operate within defined standards.

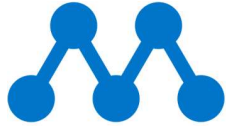
Considering that IoT over satellite is aimed at providing low-cost, scalable solutions to cover underserved regions, it is essential that the associated fees remain symbolic. A high fee structure could inadvertently stifle growth in a sector where cost-sensitivity is crucial for both operators and end-users. Keeping the fee minimal will encourage investment in expanding IoT networks and improve connectivity in regions that are traditionally underserved by terrestrial networks

While Myriota is not entirely clear on the exact proposal that the Authority outlines in its paper, Myriota takes the liberty to suggest a fee structure that could be tiered based on terminal volume, to accommodate various scales of deployment while keeping costs low enough to support rapid expansion. For example, a symbolic fee structure in South African Rands (ZAR) might look like this:

- Up to 1,000 terminals: ZAR 500 annually
- 1,000 - 5,000 terminals: ZAR 1,000 annually
- 5,000 - 10,000 terminals: ZAR 2,500 annually
- 10,000 - 50,000 terminals: ZAR 5,000 annually
- Over 50,000 terminals: ZAR 10,000 annually

This fee structure is symbolic, designed to cover administrative costs while promoting large-scale IoT adoption in unconnected areas. By keeping fees low, regulators can support the expansion of satellite IoT services that bring essential connectivity to remote and underserved regions, contributing to economic growth, social development, and bridging the digital divide.

Question 8.



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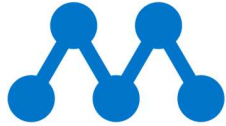
Please provide your comments and details of the best practices in other jurisdictions to fulfill the intentions of the Authority as indicated in the above section. Furthermore, considering the provision set out in the Astronomy Geographic Advantage (AGA) Act of 2007, and the requirements of the Radio 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?

The Authority's intention to implement a non-burdensome registration process rather than a stringent "landing rights" system can be viewed as a redundant and unnecessary measure, particularly considering the global regulatory framework already provided by the International Telecommunication Union (ITU). The ITU coordinates satellite operations and authorizes space segment access through internationally recognized procedures, making additional national registration requirements largely superfluous.

The process that Authority wishes to implement is duplicative, since satellite operators are already required to coordinate with the ITU and secure authorizations from their home administrations, an additional registration process in South Africa does not add any meaningful regulatory oversight. ITU coordination ensures that frequency assignments and orbital slots are managed to avoid interference, addressing the primary concerns associated with satellite operations. Consequently, duplicating this process locally only adds administrative steps without providing new protections or benefits.

Contrary to the general intention of the Authority to establish rules that would promote durable investment, the registration process will constitute a barrier for foreign operators, creating additional administrative burdens that may deter some providers from entering the South African market. This reduced competition could limit service options and lead to higher prices for consumers, undermining the benefits of satellite connectivity, particularly for rural and underserved areas that rely on global satellite infrastructure for essential services.

While the Authority cites the example of Brazil, Myriota wishes to underline that most of countries are moving toward "Open Skies" policies, recognizing satellites as global infrastructures that do not conform to national boundaries. This approach removes the need for local registration or landing rights, allowing operators to offer services across borders based solely on ITU coordination. South Africa's additional registration process appears to



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contradict the spirit of Open Skies, introducing unnecessary local controls that provide no tangible benefits.

In imposing the charge for this registration Myriota sees an Increased Administrative Burden without revenue benefit. The Authority's intention to charge a nominal fee for this registration process will create administrative responsibilities for tracking, updating, and maintaining the registry, but it will generate minimal revenue and may be challenging to justify. Given the complexity of satellite operations and frequent changes in satellite systems, the costs of managing this registry could outweigh the benefits, creating a strain on administrative resources for both the Authority and satellite operators.

With regard to the PFD limits indicated in the registration, Myriota thinks that the existing Protections are adequate and does not see any additional protection or compliance benefits that may be provided by the proposed registration for South Africa terrestrial services or radio astronomy interests beyond what is already managed by ITU standards. The ITU framework, with its Articles 9 and 11 of the Radio Regulations, already addresses coordination needs, interference management, and operational compliance. South Africa's requirement for individual licensing of ground stations also ensures control over terrestrial aspects of satellite operations, which is sufficient to protect domestic interests without a separate space segment registration. Furthermore, satellite networks are obliged to adhere to the internationally accepted PFD limits already outlined in ITU Articles and Appendices, which have been deemed suitable to protect terrestrial systems. This will be sufficient to protect South Africa's terrestrial services without space segment registration.

In summary, the Authority's proposed space segment registration process appears to be a superfluous step that introduces unnecessary complexity without adding value. By aligning fully with ITU regulations and adopting a more open access approach, South Africa can foster greater competition, encourage investment, and enjoy the benefits of satellite services without imposing redundant registration requirements.

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