**11 October 2024**

**Subject:** Plan-S response to ICASA’s Consultation on the proposed new Licensing Framework for Satellite Services

Dear Mr. Mchunu

We appreciate the opportunity to share our perspectives on ICASA’s consultation paper regarding the proposed Licensing Framework for Satellite Services. We believe that this initiative, aimed at developing a transparent and streamlined regulatory framework with clear guidelines, will help establish regulatory certainty and bring positive results for all stakeholders in South Africa. We also commend ICASA’s efforts in shaping this new regulatory framework, which will ultimately promote social and economic well-being for both citizens and industries of South Africa.

Here we have provided answers to the questions, relevant to Plan-S, in the public consultation document:

***Q1. 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?***

The proposed policy principles outlined by ICASA, aligned with the ATU, are well-defined and provide essential guidance to stakeholders, fostering a healthy and competitive satellite service ecosystem. By creating a transparent and predictable regulatory environment, ICASA encourages more operators to enter South Africa, which increases competition, drives down costs, and ultimately benefits consumers. Furthermore, principles like blanket licensing and setting reasonable spectrum fees ensure that satellite operators can deliver services in a cost-efficient manner, broadening access for both citizens and industries.

The emphasis on harmonizing licensing processes across ATU Member States and adhering to ITU instruments is crucial for regional coherence and preventing regulatory fragmentation, thereby easing market entry. However, given the pace of technological advancements, strictly adhering to ITU Radio Regulations may limit the full potential of emerging technologies. For example, the FCC has already developed its NTN framework (Supplemental Coverage from Space) ahead of WRC-27 to stay at the forefront of space-based innovations. Similarly, the ECC has addressed [the satellite use of short-range device frequency bands](NULL), particularly the 862-870 MHz band, reflecting a need for adaptable regulatory approaches. The ECC is now working on an ECC Decision regarding this matter.

While ICASA’s policy principles are commendable, we recommend incorporating flexibility in adhering to ITU Radio Regulations when technical studies demonstrate no harmful interference to existing services. This dynamic approach would ensure that South Africa's regulatory framework remains robust while allowing for the introduction of innovative satellite technologies, contributing to the country’s economic and social well-being.

Moreover, principles that promote the efficient use of spectrum should be introduced, ensuring access for multiple satellite operators through licensing for more than one entity or enabling spectrum sharing. This would foster competition in the market. In some regions, incumbent players hinder market entry by arguing that spectrum sharing is not feasible or by claiming exclusive rights to spectrum, even when they are not utilizing it. This leads to a lack of competition, inefficient use of a valuable public resource, and, ultimately, higher prices for consumers. Therefore, we strongly advocate for the inclusion of principles that safeguard efficient spectrum usage and ensure market competition.

***Q2. 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.***

South Africa holds a key geographic position for NGSO operators to download and upload their traffic, making it essential that the framework should not exclude the licensing of any services. An inclusive approach would ensure that all types of satellite services can benefit from South Africa’s strategic location. For example, the licensing of gateway stations for Earth Exploration Satellite Services operating in frequency bands such as 8025-8400 MHz and 25500-27000 MHz should be considered under the satellite gateway earth station license. South Africa’s existing teleport sites currently support these services, enabling efficient data relay for Earth Observation and other critical satellite operations. Therefore, we propose that all service types should be eligible for licensing under this framework to maximize the potential benefits for both operators and the country.

***Q3. 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.***

Yes, we fully support the proposed approach of having separate licenses or authorizations for each segment of the satellite communication value chain. This method is not only well-established but also effective, as evidenced by similar practices in other jurisdictions. For instance, Ofcom has implemented specific licensing categories such as Earth Station Network and NGSO Earth Station tailored for NGSO FSS operators, allowing for more precise regulation and oversight. Likewise, BNetzA utilizes two main distinct licensing types for earth stations and satellite networks, providing clarity and regulatory consistency.

Similarly, ARCEP in France has adopted a comparable approach, ensuring that each segment of the satellite communication ecosystem is effectively managed. In Australia, ACMA has developed a robust registration process for all satellite operators, offering apparatus licenses for both earth stations and space stations, further demonstrating the effectiveness of this segmented licensing strategy.

However, we recommend that these will be established as main license types and categorized according to service types, such as NGSO FSS, GSO FSS, and MSS. This categorization allows for spectrum fees to be determined based on the specific service types, as each service type has different cost structures and value additions for customers. This approach has been successfully implemented in the jurisdictions mentioned above and would enhance the regulatory framework’s responsiveness to the diverse needs of the satellite communication sector. Therefore, we believe that a principle should be added to guarantee efficient use of spectrum by considering mechanism to take spectrum back from licensee in case no use for a period of time, and preventive regulation for incumbent operators’ barriers to new comers due to competition concerns.

The clear and structured framework that you propose aligns well with the objectives set forth at the beginning of the consultation process. By delineating licenses for each segment, you not only simplify the regulatory landscape but also enhance accountability and compliance within the satellite communication sector. This approach fosters an environment conducive to innovation and investment, ultimately benefiting the industry and consumers alike. Overall, we believe that this licensing framework will significantly contribute to the establishment of a transparent and efficient regulatory environment for satellite services in South Africa.

As you move forward with simplifying licenses for satellite services to enable more operators to serve in South Africa, we are unclear whether the existing regulations for Individual Electronic Communication Network (I-ECN) and Electronic Communication Service (ECS) license types will remain unchanged or be removed from the legislation or adopted to be aligned with the new licensing proposal. If they remain as they are, we believe that these proposed changes may have limited impact or not be fully effective. In such a scenario, the only way to provide services would be through partnerships with holders of I-ECN or ECS licenses, which could increase service costs.

Therefore, we kindly request that you adapt the I-ECN and ECS licensing framework in line with the proposed changes to ensure broader effectiveness.

***Q4. Please provide your comments on the proposals in the preceding paragraph and the duration of the Gateway Earth Station licences.***

South Africa’s geographic location makes it one of ideal hosts for NGSO operators to download and upload their traffic. Therefore, it is crucial that the licensing framework for Gateway Earth Stations should be competitive within its region. A well-structured framework not only fosters job creation but also significantly contributes to South Africa’s economy through the construction and operation of these Earth stations. Additionally, it is essential that the licensing process does not impose any unnecessary burdens, allowing the country to maximize the benefits of its geographical advantages for hosting Earth stations.

We fully align with DOTECON’s views on the importance of longer radio spectrum license terms and renewal options for Gateway Earth Station licenses. These provisions provide critical certainty and predictability to market entrants, enabling them to justify the substantial upfront and operational expenses required to establish Earth stations that support connectivity for consumers and businesses.

If the proposed new framework implements longer radio spectrum license terms and renewal options while also removing the condition that only ECN licensees can apply for Earth station licenses, South Africa could emerge as one of the important hubs for NGSO operators. This change would enhance the nation’s economy through job creation and increased revenue from spectrum fees, as well as the construction and operation of Earth stations. Ultimately, adopting these recommendations will help position South Africa as a competitive player in the satellite services market, attracting more operators.

Plan-S has already planned to deploy a Gateway Earth Station in Pretoria; however, we have encountered barriers and uncertainties in the licensing frameworks and regulations, which have prevented us from applying for a license. We are currently reconsidering our Earth station deployment in Pretoria, underscoring the validity of DOTECON’s assessment. Therefore, we strongly recommend that ICASA make its regulations more competitive compared to other countries in the region for the benefit of South Africans. We commend ICASA for its efforts to remain at the forefront of regulatory updates, particularly in response to emerging developments in the space sector.

***Q5. 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.***

Spectrum fees should be structured in a way that ensures South Africa remains an attractive destination for satellite operators looking to install and operate Earth Stations. Additionally, it is important to recognize that Gateway Earth Stations can be deployed not only for High Throughput Satellites (HTS) but also for telemetry, telecommand, and feeder links. Therefore, the spectrum fee should not be solely focused on advantages for HTS, but rather be defined to maintain South Africa's competitive edge over other countries in the region.

Plan-S plans to deploy Gateway Earth Stations in the 401-403 MHz, 2025-2110 MHz, and 2200-2290 MHz bands. We prefer that the spectrum fee calculation should be based on the formula: Unit Price x Bandwidth in MHz. For example, if we use 2 MHz for uplink and 6 MHz for downlink in the 2 GHz band, the annual spectrum fee would be calculated as 500 x 6 = 3000 rands. For the 401-403 MHz band, with a usage of 2 x 12 kHz, the annual spectrum fee would be 2000 x 0.012 = 24 rands. If our understanding is correct, we prefer a spectrum formula based on unit price and bandwidth.

In terms of methodologies, [BNetzA](NULL) formulates the spectrum fee for satellite earth stations as 0.8 × t × B, where “t” represents the number of years and “B” is the bandwidth in MHz. This approach is similar to that suggested by ICASA, though it lacks a frequency band factor. In France, [ARCEP](NULL) has adopted a formula that considers the product of “l”, “bf”, and “k3” values, where “[k3” is a constant equal to 15.5, “l” represents bandwidth in MHz, and “bf” is the frequency band factor](NULL). This is a similar approach to what ICASA proposes.

In conclusion, we commend the actions aimed at lowering spectrum fees to facilitate the licensing of Earth Stations, which will enhance South Africa's attractiveness as a location for satellite operations.

***Q6. 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.***

We fully agree with the proposed introduction of blanket licensing for user terminals, as it reduces the regulatory burden for both the licensee and the Regulator, making it easier to implement. Additionally, we support the proposed technology-neutral approach, which accommodates various satellite terminals, including satellite phones, VSAT, ESIM, IoT, etc. This aligns with the objective of reducing regulatory costs and simplifying the licensing process.

However, we do not agree with the proposed fee structure based on the number of devices. It would be challenging to accurately inspect the number of devices that satellite operators report to ICASA, potentially adding unnecessary workload for both the operators and ICASA. Moreover, applying the same fee structure across all user terminals is not appropriate. Different terminals have varied deployment scales, bandwidth requirements, transmission frequencies, and revenue models. For instance, IoT terminals typically communicate with satellites limited number of times a day, using minimal bandwidth and generating lower revenue per terminal compared to other satellite services whereas broadband devices, on the other hand, require real-time communication with much higher bandwidth and generate significantly more revenue per device.

We recommend reconsidering the spectrum fee calculation for the *“Satellite User Station Network Licence”* based on factors such as duration, bandwidth, and frequency bands, as is done in countries like France, Germany, and Australia. This is similar to ICASA’s own approach for calculating spectrum fees for Gateway Earth Stations.

For example, “Allocation of frequencies for the operation of a satellite radio network” in Germany is equivalent to “Satellite User Terminals Network Licence”. The fee is calculated as 3.50 × *t* × *B* × *NU*, where “*t”* is the license duration in years, “*B”* is the bandwidth in MHz, and “*NU”* represents the scope of use (either stationary or mobile and stationary). In France, a similar approach is used: the fee is calculated as the product of “*l”*, “*k3”*, and “*a”*, where “*l”* is the bandwidth in MHz, “*k3”* is a constant (equal to 15.5), and “*a”* is a constant (2.5 for FSS and 30 for MSS).

Additionally, if ICASA decides to maintain the approach outlined in the public consultation document, we believe that IoT terminals should be excluded from fees. IoT terminals have a lower revenue potential compared to other types of satellite terminals, can be highly mobile, and the task of inspecting and reporting the number of devices to ICASA would create administrative burdens for both ICASA and operators. Excluding IoT terminals from the fee structure would reflect the lower bandwidth and revenue generated by these devices and help to avoid unnecessary complexities. Additionally, this approach will facilitate the deployments and widely adoption of IoT technologies across South Africa and contribute to South Africa’s economy with the benefits of IoT technology, i.e. increase in the efficiency of works. For instance, IoT terminals in MSS bands are excluded from fee and license in the [UK.](NULL)

In conclusion, we recommend a fee calculation model based on duration, bandwidth, and frequency bands, to reflect the varied nature of satellite user terminals and provide a fairer, more efficient fee structure.

***Q8. 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?***

We commend ICASA’s approach in introducing the “List of Authorised Space Stations” where registration is designed as a simple administrative process for registering satellite networks to downlink signals in South Africa. However, we do not support the collection of any fees for this process. We are concerned that introducing even a once-off fee could create a burden on market entry, especially if the fee is set higher than reasonable levels, not taking into account service type and market size. Additionally, your proposed approach is similar to that of ACMA’s satellite determination lists, where both domestic and foreign satellite operators provide the necessary information for assessment by ACMA, after which operators are listed under the [Radiocommunications (Australian Space Objects) Determination 2014](NULL) and [the Radiocommunications (Foreign Space Objects) Determination 2014](NULL). Importantly, ACMA does not charge operators for this process, which we believe that it reduces the barrier to entry and fosters a more open market.

We also support the clarification that this registration does not grant the right to provide telecommunications services or operate telecommunications networks within South Africa. However, the licensing process for I-ECNS and ECS must facilitate market entry and should not impose unnecessary barriers, such as the requirement for a local entity or a 30% ownership by historically disadvantaged groups, which can deter foreign satellite operators. Making the I-ECNS and ECS licensing processes easier and aligned with these proposed changes will increase the competitiveness and richness of South Africa’s telecommunications market, particularly in terms of satellite connectivity.

In terms of mitigating interference to the Radio Quiet Zone, we recommend that ICASA can rely on the provisions of the ITU Radio Regulations, specifically Resolution 739, and relevant ITU-R recommendations such as Recommendation RA.769. These guidelines outline the power flux density limits that satellite operators must comply with to protect radio astronomy services in South Africa. Ensuring compliance with these international standards will safeguard South Africa’s valuable radio astronomy resources while still allowing satellite operators to provide services.

Furthermore, we support the proposal to exclude gateway Earth stations from this registration process and agree with the regular publication of a list of registered foreign satellites. We also believe that legal interception requirements should not apply totally to all services. Specifically, we recommend that IoT services be excluded from legal interception requirements, given their low data usage, limited transmission frequency, and the nature of the applications they support. Applying such requirements to IoT services would add unnecessary complexity and cost to operators without significant benefit.

***Q9. 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.***

*Note: Plan-S is a satellite IoT operator, and we are responding to this question from that perspective.*

In a world where 85% of the Earth's surface remains without terrestrial networks due to geographic and economic constraints, satellite technology becomes a crucial solution for bridging the digital divide, especially in countries where terrestrial networks cannot feasibly cover vast, remote areas. Satellite connectivity is a key enabler for seamless IoT device coverage regardless of location, thereby helping to close the digital gaps within a country and globally.

As a satellite operator, Plan-S is committed to addressing global connectivity challenges while fostering a sustainable IoT ecosystem through our CONNECTA IoT Satellite Network. Our goal is to improve lives by delivering cost-efficient, reliable, and comprehensive global IoT coverage via sustainable space technologies. The CONNECTA IoT Satellite Network is designed specifically for massive narrowband IoT connectivity and offers numerous benefits, including low latency, high capacity, and cost-effective global reach. This is achieved through our low-cost LEO constellation, which will eventually connect billions of devices worldwide.

One of the standout features of the CONNECTA IoT system is its hybrid Direct-to-Satellite (D2S) and Terminal-to-Satellite (T2S) connectivity, which provides flexibility and integration with existing systems. D2S links operate in the 862-870 MHz or 902-928 MHz frequency ranges, depending on availability and national regulations, fully complying with national guidelines for short-range devices and license-exempt devices for Earth-to-space communications. The same frequency bands are used for satellite-to-device links if permitted by local regulations. Otherwise, Connecta IoT satellite system employs the frequency band 400.15-401 MHz for D2S connectivity.

Plan-S has already deployed four satellites, and we will expand to 16 satellites within the next year, offering IoT services with an average revisit time for South Africa of 1 hour and 57 minutes, and a maximum revisit time of 4 hours and 51 minutes. By 2029, we aim to reduce these revisit times to under 30 minutes.

Plan-S also aims to contribute to South Africa’s Digital Economy Master Plan in the following ways:

* **Infrastructure Development and Innovation**: The CONNECTA IoT Satellite Network introduces new opportunities for application developers, IoT service providers, and network operators, fostering innovation that leads to improved quality of life through advanced applications, services, and job creation in South Africa. We deploy these solutions in areas where terrestrial networks fall short.
* **Gateway Installation**: We have planned to deploy a gateway station in Pretoria, further supporting infrastructure development and connectivity.
* **Economic Growth**: The CONNECTA IoT Satellite Network offers seamless nationwide coverage, enabling applications that enhance the management of critical sectors such as mining, agriculture, livestock, and energy production, contributing to South Africa’s economic growth.
* **Sustainability**: Plan-S is positioned to support wildlife protection initiatives, including tracking endangered animals and monitoring their movements, thereby contributing to conservation efforts.
* **Competition and Innovation**: Our cost-efficient solution promotes competition, leading to lower prices, economic growth, and enhanced consumer satisfaction.

Specific use cases where the CONNECTA IoT Satellite Network can play a key role in supporting South Africa’s digital economy include:

* **Mining**: South Africa's mining sector is one of the largest in the world. IoT can be used for equipment monitoring, resource estimation, power consumption tracking, and safety management.
* **Agriculture (Precision Farming and Livestock Monitoring)**: IoT sensors can monitor soil moisture, crop health, and weather conditions, helping farmers optimize irrigation, reduce water usage, and increase yields. In livestock management, IoT sensors track animals' location, health, and behavior, helping to detect diseases early and improve herd management.
* **Energy Production**: IoT devices can be used to monitor the electricity grid, manage energy distribution, detect faults, and optimize power consumption, helping to address energy-related challenges in the country.

In conclusion, as an operator committed to providing IoT services in South Africa through our proprietary CONNECTA IoT Satellite Network, which is based on LoRaWAN and 3GPP standards, we commend ICASA’s efforts to reduce unnecessary barriers to market entry, thereby enabling South African citizens to benefit from cutting-edge satellite technologies. We greatly value ICASA's work in developing this new regulatory framework for satellite services, which represents a significant step toward enabling a broader range of services, fostering competition, and ultimately enhancing consumer satisfaction.

At Plan-S, we are excited to see ICASA driving this positive change, and we look forward to collaborating in bringing the advantages of satellite IoT connectivity solutions to South Africa.

We appreciate once again the opportunity to contribute our insights to this important consultation and remain committed to supporting ICASA’s vision of creating a clear, enabling, and forward-thinking framework for the satellite industry.

Respectfully submitted,

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**About Plan-S:**

Plan-S, established in 2021, is the major private initiative in Türkiye’s satellite and space technology sector, aiming to become a leading global company in the "new space" field by assembling top talents and conducting R&D in satellite and subsystem development, as well as ground and user segment hardware and software in IoT, Earth Observation, and Space-as-a-Solution (SpaaS) business fields.

Plan-S aims to provide IoT connectivity and Earth Observation services across sectors such as agriculture, oil & gas, maritime, transportation, energy, and finance. The company is also focused on the design and manufacture of satellite systems, including satellites, ground stations, ground devices, and the network software needed for seamless operation.

Plan-S launched its first satellite in less than 8 months, starting from scratch while simultaneously assembling its team, establishing technical infrastructure, and developing engineering processes. Additionally, Plan-S has been operating 5 test satellites in orbit, all launched before the company’s second anniversary.

Now, as Plan-S steps into its third year, it will commence commercial IoT services with its satellite network, CONNECTA IoT, this year after the first set of commercial satellites (4 additional satellites) was put into orbit on 16th of August 2024. In the short term, twelve additional IoT satellites will be launched within a year. The company’s long-term vision includes deploying a constellation of over 100 satellites by 2029, to be completed in three major phases based on market demands and requirements.

For more details about Plan-S, please visit [https://www.plan.space/](NULL)