

**Consultation Paper on the Framework for Service Authorisations to be Granted Under  
the Telecommunications Act, 2023**  
TRAI

**Contact information**

Elisabet Fonalleras  
Head of Regulatory Affairs  
[elisabet.fonalleras@sateiot.com](mailto:elisabet.fonalleras@sateiot.com)

Mariona Pazos  
Regulatory Affairs  
[mariona.pazos@sateiot.com](mailto:mariona.pazos@sateiot.com)

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## **Introductory remarks**

Founded in 2018, Sateliot is a Spanish company and the first satellite operator to deliver IoT (Internet of Things) connectivity through the 5G NB-IoT NTN standard, approved by 3GPP in June 2022 as an extension of the 5G terrestrial standard.

Sateliot's constellation will act as cell towers in space, extending the coverage of mobile network operators and providing global connectivity to commercial terrestrial devices without modification wherever they are. Our service will be to offer connectivity based on a standard protocol, which will allow the service to be widespread at a low cost.

Sateliot's business model is purely based on wholesale. It will provide satellite capacity to global IoT ecosystem stakeholders, mainly MNO's and also IoT operators through standard GSMA roaming agreements, so they can offer their customers an uninterrupted service experience. It is important to highlight that Sateliot will not provide the IoT connectivity service directly to end users (in other words, it will not act as a Service Provider to the end user). Our services will play a pivotal role in addressing connectivity challenges in rural, regional, and remote areas in India.

Sateliot welcomes the opportunity to provide input into this important consultation regarding the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023. As a pioneering entity in satellite-based 5G NB-IoT connectivity, Sateliot is keen to commend TRAI for its collaborative efforts in shaping regulatory frameworks that drive innovation and integrate advanced technologies seamlessly.

## **General comments**

Sateliot welcomes the TRAI's initiative to establish a comprehensive framework for service authorisations under the Telecommunications Act, 2023. We believe a well-defined regulatory framework is crucial for fostering innovation, ensuring regulatory stability, and promoting sustainable growth in the telecommunications sector.

As pioneers in integrating satellite IoT connectivity with the 5G NB-IoT NTN standard, we understand the importance of regulatory environments that adapt to technological advancements while safeguarding stakeholder interests. We advocate for a balanced approach that facilitates market entry for innovative players and supports seamless integration of satellite and terrestrial networks.

## Sateliot's answers

### Q1. Policy Direction for the Space Sector

1. What should be the key policy directions for the space sector to support the growth of satellite-based services in India?

Sateliot believes that the key policy directions for the space sector to support the growth of satellite-based services in India should include:

- **Streamlining Regulatory Processes:**

Establishing clear guidelines and faster processing times to encourage new entrants and support existing players. Also, introducing specific licences for services such as satellite IoT with more simple processes to facilitate quicker deployment and innovation.

- **Local Partnerships Benefits:**

Facilitate the market access to those satellite service providers who partner with local Mobile Network Operators (MNOs). This will ensure that foreign operators collaborate with local entities, fostering local economic benefits such as job creation, infrastructure development, and knowledge transfer. Encouraging these local partnerships will enhance the integration of satellite services into the existing telecommunications infrastructure, providing broader and more reliable coverage.

- **Efficient Spectrum Management:**

Preventing Spectrum Warehousing: Implement strict regulations to prevent spectrum warehousing, where operators hold onto spectrum without deploying services. Introduce "use-it-or-lose-it" policies to ensure that spectrum is actively used for providing services. If an operator fails to utilize the allocated spectrum within a specified period, the license should be revoked and reallocated to other operators who can make better use of it.

By focusing on these key policy directions, India can create a conducive environment for the growth of satellite-based services. Streamlined regulatory processes will lower barriers to entry, promote collaboration between foreign and local operators, and drive economic growth. Efficient spectrum management will ensure that valuable spectrum resources are used effectively, fostering innovation and competition in the market.

### Q2. Authorisation Structure

2. Should the authorisation structure for providing satellite-based services be unified or differentiated based on the type of services? Kindly justify your response.

Sateliot believes that the authorisation structure for providing satellite-based services should be differentiated based on the type of services, specifically advocating for a distinct license for IoT services. The requirements for IoT services are highly specific and necessitate a tailored regulatory approach to ensure that standard technologies can operate efficiently within the standard frequencies attributed by the 3GPP.

IoT services, particularly those operating under the 5G NB-IoT NTN standard, require specific technical parameters and operational conditions to function optimally. A dedicated IoT license would

facilitate the streamlined deployment and management of these services, ensuring compliance with international standards and efficient use of spectrum resources. This approach would also help avoid potential conflicts and interference issues that could arise from a one-size-fits-all licensing structure.

### Q3. Essential Aspects of Authorisation

3. Which essential aspects of authorisation should be included in authorisation documents?

**a. Service Classification:** Authorisation documents should clearly distinguish between wholesale and retail services. Wholesale services, which involve selling capacity to local operators rather than directly to end-users, should have more flexible conditions, mainly regarding local presence in the country, to encourage market entry and competition. This differentiation will help tailor regulatory requirements to the specific needs and operational models of different service types, ensuring a more efficient and supportive regulatory environment.

**b. Spectrum Utilization:** Operators offering wholesale services should be granted the right to manage their own spectrum. This autonomy would enable more efficient use of spectrum resources and facilitate better distribution among local players. By allowing wholesale operators to control their spectrum, the regulatory framework can avoid the inefficiencies and fragmentation that occur when the MNO relying on satellite connectivity are the ones holding individually their portions of spectrum. Instead, a consolidated spectrum management approach can enhance overall service quality and availability.

**c. Technical Standards Support:** Regulatory Authorities should support international technical standards, such as the 3GPP 5G NB-IoT NTN protocol, by streamlining the application process for standard technologies, interoperability is ensured, as well as, seamless integration with existing telecommunications infrastructure. By adhering to globally recognized standards, operators can offer reliable and compatible services, fostering a more interconnected and robust network environment.

**d. Market Entry and Competition:** The authorisation process should be designed to promote fair competition and lower barriers to market entry. This includes streamlined application procedures, transparent evaluation criteria, and reasonable licensing fees. By creating a competitive market environment, the framework can attract a diverse range of players, stimulating innovation and offering consumers better choices.

### Q4. Safeguards for Regulatory Stability

4. In view of the provisions of the Telecommunications Act, 2023, what safeguards are required to ensure the long-term regulatory stability and business continuity of service providers, while making authorisations and associated rules dynamically aligned with contemporary developments? Kindly provide a detailed response with justifications.

Sateliot understands that this consultation paper addresses authorisations for providing telecommunication services under Section 3(1) of the Telecommunications Act, 2023. While it does not cover spectrum assignment and use directly, these aspects are interconnected. Therefore, we highlight the following safeguards:

**a. Spectrum Warehousing Prevention:** It is important to ensure that operators holding spectrum bring their technologies into use within a specified period.

We recommend that regulators introduce usage requirements for operators receiving spectrum allocations. Specifically, we propose the establishment of a mandate obliging all spectrum assignees to demonstrate an actual use of the spectrum within a two-year timeframe following the acquisition of their license. By imposing such a requirement, regulators can incentivize operators to proactively deploy services and actively contribute to the advancement of the telecommunications ecosystem while ensuring an efficient use of spectrum, preventing operators from warehousing spectrum they would not use.

**b. Regulatory Consistency and Flexibility:** Ensure regulatory stability with mechanisms for regular updates to align with technological advancements. Periodic consultations with industry stakeholders can maintain a balance between stability and adaptability.

**c. Transparent and Predictable Regulatory Environment:** Establish clear guidelines on authorisation processes and compliance requirements, including the renewal.

Allowing companies to initiate renewal applications well in advance of the expiry date would provide greater flexibility and ensure a smooth transition between license terms. There should be an enough renewal application window to allow for more proactive planning and efficient processing of renewal requests. Additionally, we suggest that during the review period for license renewal, the existing license should remain valid until a formal decision is rendered by TRAI. By ensuring the continued validity of the license during the renewal review process, companies can maintain operational certainty and mitigate any potential disruptions to their services.

**d. Innovation and Technological Adaptation:** Encourage innovation by supporting the integration of satellite and terrestrial networks and promoting the adoption of international standards like 5G and IoT.

#### **Q5. Unified Service Authorisation at National Level**

5. In addition to service-specific authorisations at the service area level, is there a need for introducing a unified service authorisation at the national level for the provision of end-to-end telecommunication services with a pan-India service area under the Telecommunications Act, 2023? Kindly justify your response.

Sateliot supports the idea of a Pan-India authorisation that allows the operator to provide services across the country but emphasizes the need for specific licenses for each type of service, such as IoT satellite services, rather than end-to-end telecommunication services. Sateliot's business model focuses on providing wholesale IoT connectivity through satellite technology, which can cover large areas across different regions. Thus, a single national authorization is practical for such services.

A Pan-india authorisation would also simplify the regulatory process for both domestic and international players, especially smaller companies. This would encourage innovation and make it easier for new and smaller players to enter the market.

Furthermore, specific IoT satellite licenses should be considered because IoT satellite services have unique technical requirements. Additionally, authorizations should include provisions for wholesale services, allowing companies that do not deal directly with end-users to provide services nationally. This approach enables foreign companies to collaborate with local operators, ensuring that there are significant local economic benefits. By working with local partners, foreign entities can contribute to the local economy, create jobs, and help develop local expertise and infrastructure.

## Q6. Scope and Conditions of National Authorisation

6. In case it is decided to introduce a unified service authorisation at the national level for the provision of end-to-end telecommunication services:

*6.a) What should be the scope of service under such an authorisation?*

The scope of service under a unified national authorisation should include all types of telecommunication services, including IoT satellite services, to ensure comprehensive coverage. This should encompass voice, data, and IoT connectivity to address both urban and rural areas, leveraging satellite technology to reach underserved regions. By including IoT satellite services, the framework can support the deployment of advanced connectivity solutions essential for various industries and applications.

*6.b) What terms and conditions (technical, operational, security-related, etc.) should be made applicable to such an authorisation?*

Operational Flexibility:

- **Flexible Spectrum Management:** Allow operators flexible management of their allocated spectrum to optimize its use. This includes enabling wholesale operators to distribute capacity to local providers effectively.
- **Preventing Spectrum Warehousing:** Implement strict “use-it-or-lose-it” policies to ensure that spectrum is utilized efficiently. Licenses should be revoked if operators fail to deploy services within a specified timeframe, allowing other operators to use the spectrum.

Local Partnerships and Economic Benefits:

- **Facilitate Local Partnerships:** Encourage foreign operators to collaborate with local companies. This ensures that there are significant local economic benefits, such as job creation, infrastructure development, and knowledge transfer.

Market Entry and Competition:

- **Fair Competition Policies:** Ensure that the authorisation process promotes fair competition and lowers barriers to market entry. Streamlined application procedures and transparent evaluation criteria will attract a diverse range of players and stimulate innovation.
- **Reasonable Licensing Fees:** Set licensing fees at reasonable levels to make market entry feasible for smaller companies and startups, encouraging a competitive and dynamic market environment.

Service Quality and Coverage:

- **Quality of Service Standards:** Establish clear service quality standards to ensure that all operators provide reliable and high-quality telecommunications services.

*6.c) Would there be a need to retain some of the conditions or obligations to be fulfilled at the telecom circle/ Metro area level for such an authorisation?*

Eventhough, certain conditions or obligations, such as specific service quality standards and local infrastructure requirements, should be retained, we believe that requirements should be minimized to avoid unnecessary regulatory burden and to support the efficient deployment of national services.

*6.d) Should assignment of terrestrial access and backhaul spectrum continue at the telecom circle/Metro area level for such authorization?*

The assignment of terrestrial access and backhaul spectrum should continue at the telecom circle/Metro area level to allow for localized management of terrestrial networks. However, for IoT satellite services and other national-level operations, a more centralized approach to spectrum management could be beneficial, ensuring that operators can efficiently utilize spectrum across wider areas without regional fragmentation.

*6.5 Any other suggestions to protect the interests of other authorised entities/smaller players upon the introduction of such an authorisation? Kindly provide a detailed response with justification.*

To protect the interests of smaller players, the unified authorisation framework should include:

- a. **Simplified Application Processes:** Streamlined procedures for obtaining authorisations to reduce barriers to entry for smaller companies.
- b. **Reasonable Licensing Fees:** Setting fees at a level that smaller entities can afford, encouraging their participation in the market.
- c. **Support for Wholesale Services:** Allowing companies that do not deal directly with end-users to operate under a wholesale model, thus supporting local operators and enhancing overall service provision.
- d. **Periodic Reviews:** Regular assessments of the regulatory framework to ensure it remains supportive of smaller players and adapts to technological and market changes.
- e. **Usage Verification:** Ensure that operators applying for licences have effectively deployed their technologies (or they deploy them in the following years) to prevent spectrum hoarding. This will promote fair competition and efficient use of spectrum resources.

## **Q12. Mergers of Scope of Authorisations**

12. What regulatory measures should be adopted for the merger of scope of authorisations?

When considering the merger of scope of authorisations, it is important to recognize that some companies may only offer a limited number of services. Therefore, these companies should not be required to adhere to the obligations that fall under the scope of other services included in a newly merged authorisation. The regulatory framework should allow for flexibility, ensuring that companies are only subject to the obligations relevant to the services they intend to provide. This approach will prevent unnecessary regulatory burdens and support the efficient operation of service providers.

Moreover, any merging of satellite authorisations should take into account the needs of smaller players. Smaller companies should have the option to fulfil obligations solely related to the services they provide, rather than a broad set of services under a comprehensive satellite authorisation. This flexibility will help smaller players remain competitive and viable in the market.

Additionally, there should be a specific satellite IoT authorisation or a dedicated sub-section within an existing authorisation. This specific authorisation would cater to business models focused on selling wholesale capacity for satellite IoT coverage, enabling them to sign roaming agreements with local players and utilize existing market devices that follow current standards, such as 3GPP. In Sateliot's experience, authorisation regimes for satellite IoT services are often simpler, as they do not involve type approval and do not require a direct relationship with the end-user. This results in easier application processes and promotes the growth of satellite IoT services.

By adopting these measures, the regulatory framework can support a diverse range of service providers, from small players to those offering specialized services like satellite IoT. This will foster a competitive and innovative telecommunications market, ultimately benefiting consumers and the industry as a whole.

## **Q18. Technology and Innovation**

### **18. What steps can be taken to promote technological innovation and adoption in satellite-based services?**

To promote technological innovation and adoption in satellite-based services, the following steps should be taken:

**a. Ongoing Consultations:** Engage in continuous consultations with stakeholders, including industry players, technology providers, and regulatory bodies. This ensures that the regulatory framework remains up-to-date with the latest technological advancements and industry needs. Stakeholder engagement is crucial for identifying barriers to innovation and developing solutions collaboratively.

**b. Support for Standard Technologies:** Encourage the adoption of technologies that adhere to international standards, such as 3GPP standards. This ensures compatibility and interoperability across different networks and devices, facilitating smoother integration of new technologies into existing infrastructure. Supporting standard technologies also promotes affordability and accessibility, making it easier for various players to enter the market.

**c. Flexible Regulatory Framework:** Develop a regulatory framework that is flexible and adaptive to new technologies. Avoid overly prescriptive regulations that could stifle innovation. Instead, focus on outcome-based regulations that set performance standards while allowing companies the freedom to choose how to meet those standards.

**d. Spectrum Allocation for Innovation:** We believe it is necessary to facilitate the implementation of global standard to ensure a worldwide implementation is possible. Therefore, it is important to adapt the table of frequency allocations to make room for innovation. For example, reserving 5 MHz uplink (UL) and 5 MHz downlink (DL) within the S-band (1980-2010 MHz for UL and 2170-2200 MHz for DL) will ensure that several players can enter the market to provide satellite IoT services. This allocation will foster fair competition, prevent monopolistic practices, and stimulate innovation within the sector. By creating a competitive environment, the quality and affordability of IoT services will improve, benefiting consumers and businesses alike. This reserved spectrum will specifically support the deployment of standard technologies, ensuring their efficient and widespread adoption. Other countries, such as Australia and Saudi Arabia, have implemented similar measures.

## **Q25. Ease of Doing Business**

### **25. What amendments are required to improve the ease of doing business in the authorisation framework? Kindly provide a detailed response with justifications.**

To improve the ease of doing business in the authorisation framework, the following amendments are recommended:

**a. Simplified Compliance Requirements:** Sateliot's business model, and potentially the business model of other companies, does not require them to design and manufacture the devices connected to their wholesale connectivity solutions. Therefore, regulatory requirements that mandate ownership



or detailed information on these devices should be minimized. Compliance should focus on standardized (3GPP) information relevant to network compatibility, reducing the administrative burden on companies and allowing them to focus on service provision.

Simplifying compliance requirements will lower barriers to entry and reduce operational costs for businesses, particularly smaller companies and startups. This encourages innovation and competition within the market, leading to better services for consumers.

**b. Streamlined Application Processes:** The application process for obtaining authorisations should be streamlined. This includes reducing paperwork, shortening processing times, and providing clear guidelines on the required documentation. Digitalising the application process can further enhance efficiency and transparency.

A streamlined application process will make it easier for businesses to enter the market and expand their operations. Faster processing times and reduced bureaucratic hurdles will facilitate quicker deployment of new services and technologies, benefiting the overall industry.

## **Q26. Specific to Spectrum Management**

### 26. What are the key considerations for efficient spectrum management in the satellite-based services sector?

Efficient spectrum management is crucial for fostering a competitive and innovative satellite-based services sector. The following key considerations should be addressed to ensure fair and effective use of spectrum:

**a. Accessibility for All Players:** Spectrum should be made accessible to both big and small companies. This prevents large players from dominating the market and ensures that smaller companies have the opportunity to enter and compete. Regulatory frameworks should include provisions that facilitate spectrum access for new and smaller entrants, such as reserving portions of spectrum specifically for these players or implementing tiered pricing models. Ensuring spectrum accessibility for all market players promotes competition, innovation, and a diverse range of services, ultimately benefiting consumers.

**b. Prevention of Spectrum Hoarding:** Measures should be put in place to prevent large companies from accumulating and hoarding spectrum without utilizing it effectively. This includes implementing “use it or lose it” policies, where spectrum licences require the holder to deploy services within a specified timeframe. If a company fails to provide the required service, the spectrum should be reassigned to another company that can make better use of it. Preventing spectrum hoarding ensures that this valuable resource is used efficiently and that the market remains dynamic and competitive. It also encourages companies to actively deploy services rather than simply holding onto spectrum as an asset.

**c. Fair Spectrum Usage:** There should be regular monitoring and enforcement to ensure that spectrum is being used fairly and effectively. Companies holding spectrum licences should be required to demonstrate active service provision and efficient spectrum use. This can be achieved through periodic reporting and audits by regulatory bodies. Regular monitoring ensures compliance with spectrum usage requirements and helps identify and address any issues of underutilization or misuse. This promotes a fair and competitive environment where spectrum resources are used to their fullest potential.

## **Q29. Amendments for Satellite-Based Authorisations**

29. What amendments are required in the terms and conditions of authorisations for providing telecommunications services using satellite-based resources in light of the policy/Act in the Space Sector? Kindly provide a detailed response with justifications.

To align satellite-based telecommunications services with the Space Sector policy, authorisation terms should be streamlined to reduce administrative burdens and harmonize with international standards for efficient spectrum use. Provisions should support innovation and flexibility, allowing temporary licences or regulatory sandboxes for new technologies. Clear guidelines on security and data protection are essential to maintain trust and integrity in satellite communications. Coordination with national space policies and international agreements is crucial for coherence and compliance. Additionally, promoting fair competition and market access will prevent monopolistic practices and ensure smaller players can participate, fostering a dynamic and competitive market. These amendments will create a more efficient, innovative, and sustainable regulatory framework for satellite services.

Sateliot extends its gratitude to TRAI for the opportunity to provide feedback to this consultation. We appreciate the chance to contribute to the regulatory process and stand ready to offer any further information or assistance you may require.

Thank you for considering our input.

**Elisabet Fonalleras**  
Head of Regulatory Affairs  
Satelio IoT Services, S.L.

**Mariona Pazos**  
Regulatory Affairs Associate  
Satelio IoT Services, S.L.