

Tata Communications Limited's counter comments to TRAI Consultation Paper on 'Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers'

At the outset, Tata Communications welcomes the proposal to introduce a distinct Satellite Communication Network (SCN) authorisation under Section 3(1)(b) of the Telecommunications Act, 2023 and thanks TRAI for granting us an opportunity to submit counter comments on this important subject.

A well-designed SCN authorisation is essential to enable a layered, competitive, and investment-friendly satellite communications ecosystem in India, consistent with Digital India and the National Space Policy 2023. Further, the proposed framework must also be viewed in light of the National Space Policy 2023, which seeks to promote private sector participation, accelerate innovation, and build globally competitive space-based capabilities, including downstream applications such as satellite communications. A predictable, technology-neutral, and investment-friendly regulatory and administratively spectrum assignment regime for SatCom networks is essential to operationalise the objectives of the National Space Policy and to attract long-term domestic and global investments into India's space and communications ecosystem.

Tata Communications strongly believes that the authorisation and spectrum assignment framework should prioritise administrative efficiency, optimal and interference-free use of resources, regulatory certainty, and ease of doing business. The framework must ensure a level playing field across satellite and terrestrial operators, remain aligned with international best practices and ITU Radio Regulations, and retain sufficient flexibility to accommodate rapidly evolving satellite technologies, including non-geostationary constellations and the increasing convergence of satellite and terrestrial networks for broadband, mobility, and enterprise services.

In view of above context, we would like to submit following counter comments for kind consideration of TRAI after reviewing the response submitted by various stakeholders for this paper:

1. **Counter Comment - SCN authorization:** Some stakeholders have suggested that the Satellite Communication Network (SCN) construct is an intermediary-led model and that the proposed framework may push satellite services into a dependent structure requiring business/commercial arrangements with service licensees. This, they argue, could raise entry barriers for specialized satellite players and affect competitive neutrality vis-à-vis terrestrial operators. In our view, this interpretation is not aligned with the Government's broader objective of delinking services from network layers and may inadvertently constrain competition, innovation, and the development of a level playing field within the sector.

The Consultation Paper introduces SCN as an integrated space-and-ground infrastructure framework and proposes a regime for entities to build and operate such networks. A key theme is the structural separation between infrastructure providers (SCN authorised entities) and service providers, positioning satellite operators primarily as wholesale capacity providers through a model termed Satellite Communication Network as a Service (SCNaaS).

Tata Communications Response: We strongly support the comprehensive framework for authorizing and regulating satellite communications under the Telecommunications Act, 2023. The introduction of the Satellite Communication Network (SCN) authorisation represents a progressive shift towards a layered, competition-friendly ecosystem aimed at promoting investment, ensuring efficient spectrum utilization, and facilitating seamless integration of satellite networks into India's broader digital and telecommunications landscape.

In our considered view, SCN authorised entities would act as enablers of market development by creating a shared, interoperable infrastructure ecosystem that lowers entry barriers rather than raising them. By separating network infrastructure from service delivery, the framework promotes specialization, allowing satellite operators to focus on their core strengths—such as space segment innovation, capacity optimisation, and coverage expansion—while enabling service providers to innovate on applications, customer engagement, and service delivery models.

Far from creating dependency, the SCN framework fosters a more open and non-discriminatory access regime, where multiple service providers having different service authorisations can leverage common infrastructure on transparent and fair terms. This approach enhances competition, encourages innovation across layers, and ensures that satellite operators are not constrained but rather empowered to scale through flexible commercial arrangements.

Additionally, aligning satellite networks with the broader principles of network-service decoupling already established in other segments of the telecom sector helps ensure regulatory consistency and competitive neutrality between satellite and terrestrial technologies. This is essential for fostering a technology-agnostic regulatory environment that supports diverse connectivity solutions required for India's digital inclusion and connectivity goals.

2. **Counter Comment -Spectrum assignment:** Some stakeholders have advocated for allocating spectrum exclusively to Access Service Providers (ASPs) and limiting Direct-to-Device (D2D) services solely to IMT spectrum. In our view, such an approach would effectively render Satellite Communication Network (SCN) providers dependent on Access Service Providers or satellite service licensees for spectrum access. This would contradict the Government's broader objective of delinking services from network layers and could inadvertently constrain competition, innovation, and the creation of a level playing field within the sector. Restricting spectrum access in this manner risks reinforcing vertical dependencies, limiting the operational flexibility of SCN providers, and creating structural inefficiencies in a rapidly evolving satellite communications ecosystem.

Tata Communications Response: We recommend that SCN Authorised Entities be allocated spectrum (including MSS spectrum) through administrative assignment in accordance with the provisions of the Telecommunications Act, 2023. This approach is essential to ensure that SCN providers can operate as independent infrastructure entities, consistent with the principle of network-service separation underpinning the regulatory framework.

Administrative allocation for SCN entities would enable efficient and coordinated use of spectrum resources particularly for satellite networks, where spectrum sharing, international coordination, and interference management require centralized planning and oversight. It would also ensure

that SCN providers have the necessary autonomy to design, deploy, and optimize network infrastructure without being subject to commercial dependencies on other licensees.

Such a framework promotes a more competitive and innovation-driven ecosystem by allowing both satellite and terrestrial technologies to coexist on equitable terms. It also supports the development of next generation use cases such as D2D services by enabling flexible spectrum access models tailored to the unique technical characteristics of satellite communications, rather than imposing constraints derived from terrestrial IMT frameworks.

In conclusion, enabling direct administrative spectrum allocation to SCN Authorised Entities will strengthen the objective of a layered, technology-neutral regulatory regime, enhance infrastructure investment, and accelerate the growth of satellite-based connectivity solutions in India.

3. **Counter Comment- applicable Frequency bands:** Some stakeholders have suggested that only FDD-based mid-bands, such as 1800 MHz and 2100 MHz, should be considered at this stage on the grounds that these bands are less prone to interference and are already supported within the global device and chipset ecosystem, thereby enabling early deployment of Direct-to-Device (D2D) services without requiring bespoke hardware or fragmented band support.

However, such an approach is unduly restrictive and does not align with the technical and regulatory realities of satellite communications. Limiting consideration to select IMT bands risks constraining innovation and undermining the development of a robust satellite ecosystem. Satellite communication systems are inherently designed to operate in internationally harmonised frequency bands, particularly those allocated for Fixed Satellite Services (FSS) and Mobile Satellite Services (MSS), which are globally recognized as the core spectrum resources for satellite-based connectivity.

Accordingly, SCN Authorised Entities should be eligible for assignment of spectrum across the full range of satellite-relevant frequency bands. Restricting SCN operations to a narrow subset of terrestrial IMT-oriented bands would not only limit technical capabilities but could also result in inefficient spectrum utilization and reduced alignment with global satellite ecosystems.

Tata Communications Comments: All such spectrum should be assigned through administrative processes, consistent with the Telecommunications Act, 2023 and India's international obligations, and should support the wholesale, network-layer role of SCN Authorised Entities under the SCNaas framework. This approach ensures efficient utilization of satellite spectrum, promotes convergence and innovation, provides long-term regulatory certainty, and supports the scalable growth of satellite communications in India in alignment with Digital India and the National Space Policy 2023. We recommend that all such satellite-relevant spectrum be assigned to SCN Authorised Entities through administrative processes, consistent with the Telecommunications Act, 2023 and India's international obligations, including ITU Radio Regulations.

Administrative assignment is the most appropriate mechanism for satellite spectrum, given its shared, coordinated, and globally harmonised nature. It enables efficient spectrum management,

minimizes interference risks through coordinated planning, and ensures alignment with cross-border and international satellite operations.

Further, this approach supports the wholesale, network-layer role of SCN Authorised Entities under the SCN-as-a-Service (SCNaaS) framework by ensuring that they have direct and predictable access to the spectrum resources necessary to deploy and scale network infrastructure. It also avoids artificial constraints that may arise from attempting to repurpose terrestrial IMT spectrum models for satellite use cases.

By enabling access to a broad portfolio of FSS, MSS, and other ITU-identified satellite bands, this framework:

- Promotes efficient utilization of scarce spectrum resources;
- Encourages technological convergence and innovation across use cases, including broadband, mobility, IoT, and D2D services;
- Provides long-term regulatory certainty to investors and ecosystem players; and
- Supports the scalable growth of satellite communications in India, in alignment with the objectives of Digital India and the National Space Policy, 2023.

In conclusion, a technology-neutral, band-agnostic, and administratively assigned spectrum framework is critical to unlocking the full potential of satellite communications and ensuring that India remains aligned with global best practices.

4. **Counter Comment- Regulatory obligations:** Some stakeholders have suggested that the regulatory obligations applicable to Network Service Providers (NSPs) should be aligned with, or made equivalent to, those applicable to service providers. We strongly oppose this view, as it does not reflect the fundamental distinction between infrastructure providers and service providers within a layered telecom framework.

NSPs are primarily responsible for provisioning and operating network infrastructure and do not directly interface with end customers. Imposing service-level obligations on NSPs would blur the functional separation between network and service layers, leading to regulatory overlap, inefficiencies, and an uneven playing field. Such an approach would also be inconsistent with the broader policy objective of promoting specialization and modularity within the telecom ecosystem.

Tata Communications Comments: Accordingly, regulatory obligations that are inherently customer-facing such as Know Your Customer (KYC) compliance, Quality of Service (QoS) standards at the retail level, consumer grievance redressal, and other end-user protection requirements should not be extended to NSPs in any manner. Thus, regulatory obligations must remain appropriately aligned with the roles and responsibilities of each layer:

- NSPs / SCN Authorised Entities should be subject to obligations related to infrastructure provisioning, network availability, security, and interoperability;
- Service Providers should retain responsibility for customer-facing obligations, including KYC, billing, QoS commitments to end users, and service delivery standards.

Extending service-provider obligations to NSPs would not only distort the intended framework but could also discourage infrastructure investment and innovation by introducing unnecessary regulatory complexity.