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**Shri Akhilesh Kumar Trivedi,
Advisor (Networks, Spectrum and Licensing),
Telecom Regulatory Authority of India,
Tower F, NBCC World Trade Centre,
Nauroji Nagar,
New Delhi-110029**

Subject: Tata Communications Limited's Response to TRAI Consultation on the Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers

Dear Sir,

This is with reference to the TRAI consultation dated 08-04-2026 titled, "**Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers**".

In this regard, please find enclosed herewith Tata Communication Limited's response for your kind consideration as **Annexure**.

We earnestly request TRAI to kindly consider our submission while finalizing the Recommendations on the same. We would be happy to provide any additional information, if required.

Thanking You

Yours Sincerely,

**Alka Selot Asthana
Global Head - Regulatory
Tata Communications Limited**

Encl: as above

TATA COMMUNICATIONS

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

Preamble

Tata Communications Ltd. welcomes the opportunity to submit its response to the TRAI Consultation Paper titled "*Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers*". Tata Communications commends TRAI for initiating a timely and important consultation aimed at establishing a clear, future-ready regulatory framework for satellite communications, a sector that is increasingly critical to India's national digital and space ambitions.

Satellite communication networks are indispensable to the achievement of the Digital India vision of universal, affordable, and resilient digital connectivity. SatCom solutions uniquely enable broadband access in remote, rural, border, maritime, and disaster-prone regions where terrestrial networks remain commercially or technically unviable, while also strengthening national network resilience and continuity of services. In this regard, satellite communications are not merely complementary to terrestrial networks but are a foundational pillar for bridging the digital divide, supporting e-governance, expanding digital public infrastructure, and enabling inclusive socio-economic development. The Consultation Paper proposes a comprehensive framework for the authorisation and regulation of Satellite Communication Network (SCN) providers, treating satellite systems as an integrated space-and-ground communication infrastructure. It envisages a new SCN authorisation regime for entities that design, deploy, and operate satellite communication networks, with a strong emphasis on structural separation between network infrastructure providers and service providers. In this context, satellite operators are primarily positioned as wholesale capacity providers under the proposed Satellite Communication Network as a Service (SCNaaS) model. Tata Communications welcomes the proposal to introduce a distinct Satellite Communication Network (SCN) authorisation under Section 3(1)(b) of the Telecommunications Act, 2023.

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.

Through this response, Tata Communications seeks to provide clear, constructive, and forward-looking recommendations that will support the rapid deployment of satellite communication services in India, advance the national objectives of Digital India and the National Space Policy 2023, and position India as a leading, globally competitive digital and space-enabled economy.

In view of above context, please find below **Tata Communications question-wise response.**

Q1. What should be the eligibility conditions, area of operation, validity period of authorisation and the scope of the proposed Satellite Communication Network (SCN) authorisation under Section 3(1)(b) of the Telecommunications Act, 2023? Kindly provide a detailed response with justification.

Tata Communications Response:

At the outset, Tata Communications wishes to submit that the proposed SCN authorisation framework should be technology-neutral, administratively efficient, and investment-friendly, and should explicitly support:

- Administrative spectrum assignment consistent with the Telecommunications Act, 2023.
- Layered authorisation and business-model flexibility, including SCNaas.
- Rapid integration of satellite networks into India's broader telecom ecosystem.

We are of the considered view that such an approach will accelerate satellite connectivity deployment, support Digital India and the National Space Policy 2023, and position India as a globally competitive market for satellite communications.

- i. **Eligibility conditions:** The eligibility conditions for SCN authorisation should be clear, objective, proportionate, and non-discriminatory, and should primarily focus on technical, financial, and legal capability rather than ownership structure. Recommended eligibility criteria include:
- i. Incorporation or registration under applicable Indian law, or compliance with prescribed conditions for foreign entities operating through an authorised Indian presence, in line with extant FDI and national security norms.
 - ii. Demonstrated technical capability to deploy, operate, and manage satellite communication networks, including associated ground segment infrastructure.
 - iii. Proven financial capacity with adequate net worth to sustain long-term satellite network operations and meet regulatory obligations.
 - iv. Mandatory compliance with national security, lawful interception, monitoring, and other requirements as prescribed by the Government of India.
 - v. Adherence to applicable space, frequency coordination, and orbital filings through the relevant national agencies, consistent with India's international obligations.

- ii. **Area of operation:** Given the inherently global and borderless nature of satellite networks, the area of operation under an SCN authorisation should be pan-India (national).
 - i. A pan-India area of operation is essential to enable uniform service delivery, rapid deployment, and seamless integration with terrestrial networks.
 - ii. SCN authorisation should permit the operation of satellite networks covering the entire territory of India, including land, territorial waters, maritime zones, and airspace, subject to applicable security and coordination requirements.
- iii. **Authorisation Validity:** The validity period of the SCN authorisation should be long-term and aligned with the investment and operational lifecycle of satellite systems which is typically 15-20 years. It is recommended that:
 - i. SCN authorisations be granted for a minimum period of 20–25 years, with a clearly defined renewal mechanism and extendable by another 10-15 years on mutual terms and conditions.
 - ii. Renewal should be treated as a continuation of the authorisation, subject to ongoing compliance, rather than a discretionary re-authorisation.
 - iii. A long validity period is necessary to account for the high capital intensity, long planning horizons, and orbital lifecycle of satellite systems, and to provide investors with certainty.

International benchmark:

- Satellite network authorisations in the US and UK typically align with satellite operational lifetimes, often spanning multiple decades.
- The ITU framework similarly accommodates long-term network filings and coordination cycles.

- iv. **Scope of Authorisation:** The scope of SCN authorisation should be clearly delineated to the network and infrastructure layer, consistent with the layered regulatory approach proposed in the Consultation Paper. The SCN authorisation should permit:
 - i. Establishment, ownership, operation, expansion and maintenance of satellite communication networks, including space segment, ground segment, gateways, and associated infrastructure.
 - ii. Provision of satellite network capacity on a wholesale, non-discriminatory basis to authorised service providers under the Satellite Communication Network as a Service (SCNaaS) model to the entities holding authorisations under Section 3(1)(a) of the Telecommunications Act, 2023.
 - iii. Support for multiple service use cases, including broadband backhaul, enterprise connectivity, mobility, maritime and aeronautical services, disaster recovery, and emerging applications such as direct-to-device communications, subject to applicable approvals.

Q2. What should be the terms and conditions (general, technical, operating, security related etc.) that should be made applicable for the proposed Satellite Communication Network authorisation? Kindly provide a detailed response with justification.

Tata Communications Response:

Tata Communications (TC) submits that the terms and conditions governing the proposed Satellite Communication Network (SCN) authorisation should be balanced, technology-neutral, and clearly limited to the network and infrastructure layer, consistent with the Telecommunications Act, 2023 and the layered regulatory approach proposed in the Consultation Paper. The conditions should provide regulatory certainty, ensure national security and spectrum integrity, and facilitate rapid deployment and integration of satellite networks into India's telecom ecosystem, while avoiding duplication of service-layer obligations. The recommended terms and conditions are outlined below.

General Conditions:

1. Authorisation Scope and Nature:

- a. SCN authorisation should be granted solely for the establishment, ownership, operation, and maintenance of satellite communication networks, including space segment and ground infrastructure.
- b. The authorisation should explicitly recognise the SCNaas (Satellite Communication Network as a Service) model and permit wholesale provisioning of satellite capacity to duly authorised service providers.
- c. SCN authorisation should not permit retail service provision to end users.

2. Technology Neutrality

- a. Conditions should be agnostic to orbit of operation (GSO, NGSO), frequency bands, constellation design, or access technology, subject only to spectrum allocation and coordination requirements.

3. Regulatory Certainty and Stability

- a. Authorisation terms should remain stable over the validity period, with changes introduced only through transparent consultation processes.
- b. Any future regulatory obligations should apply prospectively and not undermine existing investments.

4. Non-discriminatory Wholesale Access:

- a. SCN Authorised Entities should provide satellite capacity on transparent and non-discriminatory terms to authorised service providers, subject to commercial negotiations, to prevent vertical foreclosure and promote competition

Technical Conditions:

1. Spectrum Use and Coordination

- SCN Authorised Entities must operate strictly within frequency assignments made through administrative allocation in accordance with the Telecommunications Act, 2023 and ensure efficient use of allocated spectrum.
- Compliance with national and international frequency coordination requirements, including ITU Radio Regulations and filings through the relevant Indian administration, should be mandatory.
- Efficient spectrum use, interference mitigation, and coordination with other authorised satellite and terrestrial users should be explicitly required.
- Spectrum use strictly in accordance with the allocated service (FSS, MSS, etc.).

2. Network and Infrastructure Standards
 - Satellite and ground infrastructure should conform to internationally recognised technical standards (e.g., ITU-R recommendations).
 - Gateways, teleport facilities, and network operations centres located in India should meet prescribed technical and security standards.
3. Interoperability and Resilience
 - SCN operators should design networks to support interoperability with authorised terrestrial networks and service providers.
 - Business continuity, redundancy, and disaster-recovery capabilities should be mandated, recognising satellite networks' role in critical communications.

Operating Conditions:

1. Wholesale-Only Operational Responsibility
 - Maintenance of Network Operations Centres (NOCs) and operational systems capable of monitoring, controlling, and managing the satellite communication network, within India
 - SCN Authorised Entities should be responsible for network availability, performance, and capacity delivery to Service Authorised Entities under agreed service-level arrangements.
 - Retail-level obligations (customer onboarding, billing, QoS at user level, grievance redressal) should remain outside the SCN authorisation framework.
 - Service-authorized entities should be provided appropriate visibility and interfaces to manage service quality, provisioning, and customer experience
2. Capacity Provisioning Flexibility
 - Baseband and Network Control, where SCN entities deploy or manage baseband systems as part of the satellite network
 - SCN operators should be permitted to offer capacity through flexible commercial arrangements (long-term leases, variable capacity, on-demand models), supporting evolving service-provider requirements.
 - There should be no mandated capacity-reservation or utilisation thresholds that could distort market dynamics.
3. Reporting and Compliance
 - SCN Authorised Entities should submit periodic high-level reports related to spectrum usage, network uptime, and compliance.
 - Reporting obligations should be proportionate and avoid operational micromanagement.

Security Conditions:

1. Lawful Interception
 - There should not be multiple layers of interception. SCN Authorised Entities should not be obligated to provide lawful interception, monitoring facility and information sharing considering the fact no satellite-based communication service(s) are provided to the End Users. Satellite Service provider should continue to be obligated to comply with such conditions.

- Obligations should be clearly defined, technologically feasible, and limited to the network layer, recognising that service-layer controls reside with Service Authorised Entities. SCN entity should facilitate necessary infrastructure level support to enablement of the lawful interception.
 - Compliance with lawful interception, monitoring, and traceability requirements, as prescribed by the Government from time to time.
 - Adherence to national security clearances and security audits as applicable to satellite networks
2. Data and Network Security
 - All user traffic originating from or terminating within India must be routed via satellite gateways located in India, in line with DoT security directives
 - Security of gateways, network management systems, and control segments located in India should be mandated.
 - Data localisation or routing requirements, where applicable, should be clearly specified to avoid ambiguity or retrospective compliance risks.
 3. Coordination with Service Providers
 - Security responsibilities between SCN Authorised Entities and Service Authorised Entities should be clearly delineated to avoid overlap or gaps in compliance.

Financial Conditions:

1. Light-Touch Financial Framework:
 - The financial conditions applicable to SCN Authorised Entities should be proportionate and reflective of the wholesale, infrastructure-centric nature of satellite network operations.
2. Authorisation Fee:
 - There shall be no authorisation fee payable by the SCN authorised entity considering the fact that the SCN authorisation is intended to cover network layer, infrastructure only activities, involving the establishment, operation, and maintenance of satellite communication networks and wholesale provisioning of satellite capacity.
3. Spectrum Usage Charges:
 - Spectrum usage charges should be levied in a predictable and transparent manner, consistent with administrative spectrum assignment under the Telecommunications Act, 2023, and aligned with international best practices.
4. No Revenue-Based Levies:
 - SCN Authorised Entities should not be subjected to revenue-share or adjusted gross revenue-based levies applicable to retail service providers, as SCN entities do not offer end-user services.
5. Avoidance of Double Levy:
 - The financial framework should ensure that levies imposed at the SCN (network) layer are not duplicated at the Service Authorised Entity layer for the same underlying service, thereby avoiding double charging.
6. Predictability and Stability:

- All financial obligations should be stable and predictable over the validity period of the authorisation, with any changes introduced only prospectively and through a transparent consultative process.
7. Commercial Pricing Flexibility:
- SCN Authorised Entities should retain flexibility to determine wholesale pricing and commercial terms under the SCNaaS model, without ex-ante price regulation, minimum revenue commitments, or mandated pricing structures.
8. Investment and Market Enablement:
- Financial conditions should be designed to encourage long-term investment in satellite infrastructure, support efficient capital deployment, and enable competitive service delivery by authorised service providers.

Q3. Which type of authorised entities should be permitted to seek Satellite Communication Network as a Service (SCNaaS) from the entities holding the proposed Satellite Communication Network authorisation? Whether virtual network operators (VNOs) should also be permitted to seek SCNaaS? Kindly provide a detailed response with justification.

Tata Communications Response:

- Satellite Communication Network as a Service (SCNaaS) should be accessible to all authorised entities holding a valid Service Authorisation under the Telecommunications Act, 2023 subject to compliance with applicable licensing and security conditions. This will enable service-level competition and innovation without requiring duplication of satellite infrastructure. In our view, restricting access to SCNaaS would undermine the layered authorisation framework and limit service-level competition.
In particular, SCNaaS should be accessible to:
 - Licensed telecom service providers (TSPs & ISPs) authorised to provide access, broadband, enterprise, mobility, or specialised communication services;
 - Enterprise and captive service providers holding service authorisation for provisioning satellite-enabled connectivity solutions for corporate, private networks, IoT & M2M industrial, or critical infrastructure use cases;
- Yes, Virtual network operators (VNOs) should also be permitted to seek SCNaaS. In our view, permitting duly authorised VNOs to access SCNaaS is consistent with the wholesale nature of satellite networks, promotes efficient utilisation of scarce satellite capacity, lowers entry barriers, and encourages innovation in enterprise, niche, and emerging use cases without duplicating infrastructure. Appropriate safeguards should ensure that VNOs operate strictly at the service layer, hold requisite service authorisation, and remain accountable for service-level, security, and consumer obligations, while network-layer responsibilities continue to rest with SCN Authorised Entities. Such an approach reinforces regulatory clarity, competition, and flexibility, and is essential for effective adoption of the SCNaaS model in India and aligned with global practice in mature satellite markets, where service-only entities routinely access satellite capacity through wholesale or managed service arrangements, with regulatory oversight focused on service compliance rather than infrastructure ownership.

Q4. Whether the SCN authorised entity establishing, operating, maintaining, or expanding the baseband system alongwith SCN should be mandated to extend control, visibility, resource allocation and management of the telecommunication services, being provisioned using SCN to users, to the partnering entity on mutually agreed terms and conditions? Please provide a detailed response with justification.

Tata Communications Response:

- The SCN authorised entity establishing, operating, maintaining, or expanding the baseband system in conjunction with the Satellite Communication Network (SCN) should be required to extend appropriate levels of control, visibility, resource allocation, and service management capabilities to partnering Service Authorised Entities, including entities procuring capacity under the SCNaaS framework, on mutually agreed commercial and technical terms. Such a requirement is essential for ensuring effective service delivery, accountability, and innovation at the service layer, while preserving the integrity and security of the underlying satellite network.
- Service Authorised Entities bear responsibility for end-to-end service performance, customer experience, service assurance, and compliance with applicable regulatory obligations. To fulfil these responsibilities, they must have sufficient visibility into network performance parameters, capacity allocation, and service-level metrics, along with defined interfaces to manage services delivered over the SCN. In the absence of such access, service providers would be unable to ensure service quality or meet contractual and regulatory commitments, thereby undermining the effectiveness of the SCNaaS model.
- The scope and manner of such access should be governed by commercially negotiated agreements, reflecting the specific service use case, customer requirements, and technical architecture.

Q5. What provisions should be included in the terms and conditions of Satellite Communication Network (SCN) authorisation considering the policy/ Act in the Space sector? Kindly provide a detailed response with justification.

Tata Communications Response:

- SCN authorisation should align with India's space policy framework by mandating compliance with national space regulations, including approvals for satellite launches, orbital filings, and coordination through the Indian National Space Promotion and Authorization Center. It should require adherence to spectrum coordination norms under the ITU, space safety and debris mitigation guidelines, and secure operation of gateways within India.
- Satellite Communication Network authorized is required to take Satellite bandwidth from IN-SPACe authorized Space Segment provider or its subsidiary. Provisions should also cover data security, lawful interception, and national security clearances, ensuring that satellite networks operate under sovereign oversight while enabling private sector participation.

Q6. Whether there is any need for mandating a reference agreement between the entities holding the proposed Satellite Communication Network authorisation and the authorised entities providing telecommunication service? If yes, what should be the salient features

of the reference agreement between such entities? Kindly provide a detailed response with justification.

Tata Communications Response:

- It is suggested to keep a reference framework without restricting commercial flexibility. It should allow parties to commercially agree on terms (pricing, service levels, resource allocation) as the technology is nascent and developing.
- Mandating a standard reference agreement would be inappropriate and potentially counter-productive, given the diversity of satellite technologies (GSO/NGSO), network architectures, service models, and use cases contemplated under the SCNaaS framework.

Q7. With respect to the interconnection with the proposed Satellite Communication Network Authorised Entities, whether there are any other issues in addition to those raised in TRAI's consultation paper on 'Review of existing TRAI Regulations on Interconnection matters' dated 10.11.2025, which require to be addressed in this consultation process? Please provide a detailed response with justification.

Tata Communications Response:

- It is suggested to have clear interconnection responsibilities between SCN and service providers (e.g. traffic routing, QoS, fault management).
- Interconnection obligations for SCN Authorised Entities should be principle-based rather than prescriptive, recognising architectural differences.
- Mandatory PoI-based interconnection norms, cost models, and timelines developed for terrestrial interconnection should not be mechanically extended to satellite networks.
- Interconnection frameworks should explicitly recognise gateway-centric and virtual interconnection models commonly used in satellite systems.

Q8. Any other inputs or suggestions relevant to the proposed Satellite Communication Network authorisation may kindly provided with detailed justification.

Tata Communications Response:

Need for Regulatory Flexibility in SCNaaS and Service Authorisation Models

- The proposed layered authorisation framework under the Telecommunications Act, 2023, including the introduction of Satellite Communication Network (SCN) Authorisation and Service Authorised Entity roles, is both necessary and appropriate to enable timely and efficient deployment of satellite communication services in India. We strongly support this structural separation, particularly the recognition of Satellite Communication Network as a Service (SCNaaS) as a foundational model for capacity provisioning.
- By way of a viable and commercially pragmatic engagement model, a Service Authorised Entity may procure satellite capacity from duly authorised SCN Authorised Entities—entities responsible for owning, operating, and managing satellite networks and capacity into India—under the SCNaaS framework and deliver services to downstream enterprise and institutional customers in an off-net arrangement. This model enables efficient market entry with limited

upfront commitments, primarily on an operating-expenditure basis, while preserving accountability for service definition, service assurance, and customer experience. Such flexibility is critical in the current stage of market development and is fully aligned with the objectives of promoting competition, accelerating service rollout, and lowering entry barriers, as envisaged in the Consultation Paper.

- Alternatively, a Service Provider may independently obtain Service Authorised Entity status and engage directly with one or more SCN Authorised Entities for accessing satellite capacity for service provision in India. While this model may involve relatively higher capacity commitments, the extent of initial investment and commercial exposure would remain contingent on negotiated commercial arrangements. Importantly, this model affords the Service Provider enhanced end-to-end control over service design, service assurance, and customer service levels, which is particularly relevant for enterprise, mobility, and mission-critical use cases.
- The ability for Service Providers to choose between these engagement models—without regulatory bias or disproportionate compliance asymmetries—is essential to ensure that the proposed framework remains technology-neutral, market-responsive, and investment-friendly.
- Accordingly, the SCNaas framework, associated authorisation conditions, and spectrum assignment mechanisms must be designed to support such flexibility, including through administrative spectrum assignment, proportionate licensing obligations, and clear delineation of roles and responsibilities between SCN Authorised Entities and Service Authorised Entities.
- Such an approach will enable a scalable, competition-friendly satellite communications ecosystem, facilitate convergence with terrestrial networks, and materially advance India's objectives of rapid digital infrastructure expansion and inclusive connectivity.

Q9. Which of the following services should be permitted to be provided by using the SCNs established by the proposed SCN authorised entities:

- a) Fixed Satellite Service (FSS);**
- b) Mobile Satellite Service (MSS);**
- c) Direct-to-Device (D2D) Service via satellite by using MSS spectrum;**
- d) Direct-to-Device (D2D) Service via satellite by using IMT spectrum;**

Kindly provide a detailed response with justification

Tata Communications Response:

All listed above services should be permitted as follows:

- FSS and MSS should be fully allowed as core, globally harmonized satellite services and are essential for broadband, backhaul, and mobility use cases.
- D2D via MSS spectrum can also be permitted under existing regulatory frameworks, as it aligns with current satellite service definitions.
- D2D via IMT spectrum should be decided based upon global/regulatory clarity (i.e., ITU/WRC'27 outcomes).

We propose following categorization the satellite-based services from user perspective, considering existing regulatory framework in India

- Data/Internet/IoT Services (without any PSTN/PLMN voice integration)
 - GSO - FSS & including ESIM* – in various satellite bands including S-band, L-band
 - NGSO - FSS, including ESIM - in various satellite bands including S-band & L-band
- Voice + Data + Messaging services (PSTN/PLMN services using satellite as media)
 - NGSO – Direct to Cellular phone (D2C**) Services
- ESIM : Earth Station In Motion: the user terminal on moving platform (not handheld)
- D2C: Satcom services delivered directly from satellite from/to customer’s cellular phone (handheld)

Q10. Whether D2D Service via satellite by using IMT spectrum should be permitted at this stage itself, or should this matter be examined after considering the outcome of WRC-2027? Kindly provide a detailed response with justification.

Tata Communications Response:

- Commercial deployment of D2D satellite services via IMT spectrum should be decided based upon global/regulatory clarity and deferred until the international regulatory framework and technical conditions are conclusively addressed through WRC-2027
- In the interim, limited, controlled, and non-commercial trials or pilots—subject to strict safeguards, power limits, and coordination requirements—may be considered for specific public interest use cases such as emergency communications, without creating regulatory precedents.
- Any future authorisation post-WRC-2027 should be aligned with the final international allocations, technical parameters, and coexistence mechanisms agreed multilaterally.
- Future-proof regulations should be formulated following the WRC-27 recommendations on the coexistence of Direct-to-Device (D2D) services with terrestrial networks operating in IMT spectrum bands.

Q11. From the perspective of holding spectrum for the feeder link and the user link on SCNs, which of the following combinations should be permitted at the SCNs established by the proposed SCN authorised entities:

Combination No.	Spectrum for the feeder link held by -	Spectrum for the user link held by -
1	SCN authorised entity	SCN authorised entity
2	SCN authorised entity	Partnering entity (service provider)
3	Partnering entity (service provider)	SCN authorised entity
4	Partnering entity (service provider)	Partnering entity (service provider)

Kindly a detailed response with justification.

Tata Communications Response:

Our recommendations are as follows:

Combination No.	Description
1	This option should be the preferred and primary model, as it ensures end-to-end network control, efficient spectrum coordination, and simpler interference management.
2	May also be permitted in specific cases to enable flexibility and align with existing telecom licensing structures. (D2D business models)
3 and 4	Less suitable, as splitting feeder link control away from the SCN operator can create operational complexity, coordination challenges, and accountability issues in network performance and interference management

All spectrum earmarked for satellite communication including MSS spectrum by ITU guidelines, must be allotted to SCN entities only. Use of IMT spectrum by Partnering entities (Service Authorised Entities) may be permitted in user segment for delivering D2D-Cellular services only.

Q12 Which of the following types of spectrum should be assigned to the proposed SCN authorised entities:

- a) **Spectrum in the frequency bands allocated for FSS**
- b) **Spectrum in the frequency bands allocated for MSS**
- c) **Any other?**

Kindly provide a detailed response with justification

Tata Communications Response:

- SCN Authorised Entities should be eligible for assignment of spectrum in all the frequency bands allocated for FSS and MSS, as they form the core globally harmonised resources for satellite communications covering fixed, mobility, and broadband use cases.
 - FSS spectrum as the foundational spectrum resource;
 - MSS spectrum, where required for mobility and specialised use cases; and
 - Other ITU-allocated satellite bands, as may be notified or harmonised in future.
- 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 utilisation 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.

Q13 What should be the broad policy and regulatory framework for the assignment of FSS spectrum and/ or MSS spectrum to the proposed SCN authorised entities? Specifically, -

- a) **NGSO-based FSS and GSO/ NGSO-based MSS: Whether in respect of NGSO-based FSS and GSO/ NGSO-based MSS, TRAI's recommendations dated 09.05.2025 on**

‘Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services’ to DoT (read with the TRAI’s response dated 08.12.2025 to DoT’s back-reference dated 12.11.2025) should be made applicable to SCN authorised entities with necessary modifications? If yes, what modifications would be required in the terms and conditions for the assignment of spectrum for NGSO-based FSS and GSO/ NGSO-based MSS? If no, what should be the terms and conditions for this purpose?

- b) GSO-based FSS: Whether the terms and conditions for the assignment of spectrum to SCN authorised entities for GSO- based FSS should be analogous to those recommended by TRAI for NGSO-based FSS and GSO/ NGSO-based MSS through its recommendations on ‘Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services’ dated 09.05.2025 (read with the TRAI’s response dated 08.12.2025 to DoT’s back-reference dated 12.11.2025) with necessary modifications? If yes, what modifications would be required for GSO-based FSS? If no, what should be the terms and conditions for this purpose?**

Kindly provide a detailed response with justification.

Tata Communications Response:

- Spectrum for satellite communications assigned to Satellite Communication Network (SCN) Authorised Entities should be allocated through administrative assignment in accordance with the Telecommunications Act, 2023, the National Frequency Allocation Plan, and India’s ITU obligations.
- The frequency spectrum should be assigned for NGSO-based FSS and GSO/ NGSO-based MSS for a period of up to ten years from current five years. However, considering the market conditions, the Government may extend it for a further period of up to five years.
- TRAI’s recommendations dated 09.05.2025 on the Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services, read with TRAI’s response dated 08.12.2025, should be adopted as the base framework for assignment of NGSO-based FSS and GSO/NGSO-based MSS spectrum, with SCN-specific modifications to reflect the wholesale, network-layer role of SCN Authorised Entities under the SCNaas model, including exclusion of retail service obligations and revenue-linked levies. Assignment of GSO-based FSS spectrum should follow analogous principles, with appropriate adaptations recognising the long operational life, stable interference environment, and gateway-centric architecture of GSO systems.
- The overall framework should remain technology-neutral, ensure predictable tenure and charges, permit wholesale capacity provisioning to Service Authorised Entities, and clearly delineate network-layer and service-layer responsibilities, thereby enabling efficient spectrum use, investment certainty, and scalable growth of satellite communications in India.

Q14 What should be the eligibility conditions for seeking administrative assignment of FSS spectrum and/or MSS spectrum by the proposed SCN authorised entities? Kindly provide a detailed response with justification.

and

Q15 Whether there are any other inputs or suggestions relevant to the assignment of FSS spectrum and/or MSS spectrum to the entities holding the proposed SCN authorisation? Kindly provide a detailed response with justification.

Tata Communications Response:

- Eligibility should be limited to entities holding valid SCN authorisation.
- Additionally, Authorized entities will be allotted Spectrum on Administrative Assignment method based on end-usage of the spectrum by them as provisioned under the items of Schedule (1) of The Telecommunications Act 2023.
- Also, SCN authorized entities should possess valid authorisation from IN-SPACe / Department of Space (DoS)
- SCN Authorized entities should demonstrate the ability to comply with National security requirements applicable to satellite communication networks, lawful interception, monitoring, and routing obligations as prescribed by the government, and India-based gateway requirements where mandated.
- Adherence to ITU Radio Regulations and NFAP
- The spectrum assignment framework should explicitly avoid revenue-linked levies, ensure predictable and non-discriminatory spectrum usage charges, and provide assignment tenure aligned with satellite system life cycles. Additional inputs relevant to spectrum assignment include ensuring technology-neutral eligibility across GSO and NGSO systems, enabling assignment of both FSS and MSS spectrum based on demonstrated technical need, avoiding duplication of compliance or financial burdens across the network and service layers, and incorporating flexibility to accommodate future WRC outcomes and technological evolution.
- Such an approach will ensure efficient spectrum utilisation, investment certainty, and effective integration of satellite networks.
- In addition to the above spectrum assignment eligibility conditions, Tata Communication recommends that assignment of FSS and/or MSS spectrum to SCN-authorized entities should be supported by:
 - Long-term certainty and stability of assignments;
 - Explicit recognition of SCNaas and shared spectrum use;
 - Alignment with ITU-led coordination and interference management;

Q16 In case it is decided to permit the proposed SCN authorised entity to utilize the FSS spectrum and/ or MSS spectrum assigned to a service authorised entity (“partnering entity”) for the purpose of providing SCNaas to the partnering entity – whether there is a need to establish a policy and regulatory framework for enabling the SCN authorised entity to enter into an agreement/ arrangement with the partnering entity to utilize FSS spectrum and/ or MSS spectrum assigned to such partnering entity for the purpose of providing SCNaas to the partnering entity?

- i. **If yes, what should be the terms and conditions under such a framework?**
- ii. **If no, in what manner such agreements/ arrangements should be enabled and regulated?**

Kindly provide a detailed response with justification.

Tata Communications Response:

- It is recommended that FSS and MSS spectrum should be assigned directly to Satellite Communication Network (SCN) Authorised Entities, as SCN entities are responsible for the establishment, operation, and management of the satellite network, and direct assignment promotes clarity of accountability, efficient spectrum management, and compliance with ITU and national security obligations.
- Permitting an SCN Authorised Entity to utilise FSS and/or MSS spectrum assigned to a Service Authorised Entity should therefore be treated only as a limited and transitional exception, rather than the default framework. To the extent such an arrangement is permitted, there is no need for a separate or complex regulatory regime; instead, a light-touch, principle-based framework may be adopted under which spectrum remains legally assigned to the Service Authorised Entity, while the SCN Authorised Entity is allowed to use such spectrum strictly for the purpose of providing SCNaaS to the same partnering entity, under a transparent bilateral agreement.
- Such arrangements should require prior regulatory intimation, ensure continued regulatory and security accountability of both parties, prohibit sub-leasing or onward use of spectrum, and avoid any dilution of spectrum discipline or creation of parallel spectrum markets.
- Over the medium to long term, however, the regulatory framework should clearly converge towards direct administrative assignment of FSS and MSS spectrum to SCN Authorised Entities, which is the most efficient, transparent, and sustainable approach for supporting the SCNaaS model and the orderly growth of satellite communications in India.

Q17 Whether there are any other inputs or suggestions relevant to the agreement/arrangement between the proposed SCN authorised entities and service authorised entities (“partnering entities”) to utilise the FSS spectrum and/or MSS spectrum assigned to such partnering entities? Kindly provide a detailed response with justification.

Tata Communications Response:

No Comments

Q18 In case it is decided to permit D2D service via satellite by using the spectrum in the frequency bands allocated for MSS such as L-band and S-band, whether there is a need to establish a policy and regulatory framework for enabling and regulating such as service? If yes, kindly suggest a broad framework for this purpose and the key terms and conditions to be included under such as framework? Kindly provide a detailed response with justification.

Tata Communications Response:

- A robust policy and regulatory framework is needed to enable and regulate Direct-to-Device (D2D) services via satellite, even when utilizing existing Mobile Satellite Service (MSS) spectrum bands such as L-band and S-band. While D2D services in MSS bands benefit from a structured regulatory environment compared to using terrestrial IMT bands, the introduction of high-throughput Low Earth Orbit (LEO) constellations and massive machine-type communications requires regulatory frameworks that ensure coexistence and fair competition.

- International Examples:
 - USA (FCC): The FCC introduced a "Supplemental Coverage from Space" (SCS) framework, which acts as a guide for how satellite and terrestrial spectrum can be integrated.
 - Australia (ACMA): Developed a regulatory guide for D2D services, emphasizing coexistence and updated licensing for MSS and IMT-based D2D.

Q19 In case with a view to enable D2D service via satellite using IMT spectrum, it is decided to permit the proposed SCN authorised entity to utilize IMT spectrum assigned to a service authorised entity (“partnering entity”) for the purpose of providing SCNaaS to the partnering entity, -

- a) whether there is a need to establish a policy and regulatory framework for enabling the SCN authorised entity to enter into an agreement/ arrangement with the partnering entity to utilize IMT spectrum assigned to such partnering entity for the purpose of providing SCNaaS to the partnering entity? If yes, what should be the terms and conditions under such a framework? If no, in what manner such arrangements should be enabled and regulated?
- b) Which frequency bands identified for IMT should be considered for this purpose? Specifically, whether only FDD-based frequency bands should be considered?
- c) For the frequency bands identified for IMT where D2D is decided to be permitted, whether the National Frequency Allocation Plan (NFAP) should be modified to include MSS on a secondary basis? If yes, kindly furnish your suggestion for the proposed modification(s).
- d) To mitigate the issues related to cross-border interference, whether any other condition in addition to Article 4.4 of the ITU-Radio Regulations is required to be made applicable?
- e) What regulatory framework should be established for ensuring interference-free operation of D2D service via satellite by using IMT spectrum within the country? Specifically, which of the following methods should be followed:
 - i. The SCNs established by SCN authorised entities should be permitted to be used to provide D2D service via satellite by using IMT spectrum only if a single partnering entity (access service provider) holds the relevant IMT frequency channel in all the 22 LSAs of the country and agrees to permit the usage of its IMT frequency channel by the SCN authorised entity at its SCN for the purpose of providing SCNaaS; or
 - ii. The SCNs established by SCN authorised entities should be permitted to be used to provide D2D service via satellite by using IMT spectrum if one or more access service providers – together holding the assignment of the relevant IMT frequency channel across all 22 licensed service areas of the country – agree to allow the usage of their IMT frequency channel by the SCN authorised entity at its SCN for the purpose of providing SCNaaS; or
 - iii. Any other method?

Kindly provide a detailed response with justification.

Tata Communications Response:

- As recommended in response to Q10 above, it is submitted that the commercial deployment of D2D satellite services via IMT spectrum should be decided based upon global/regulatory clarity and deferred until the international regulatory framework and technical conditions are conclusively addressed through WRC-2027
- There is a need for clear guidelines on agreements between SCN authorized entities and partners to ensure compliance with the Telecommunications Act, 2023 for sharing spectrum and infrastructure between SCNs and IMT players to ensure optimal usage and security.
- This is also important for ensuring regulatory stability and protection of the investments.

Q20 Whether there are any other inputs or suggestions with respect to the delivery of D2D services via satellite through SCNs established by the proposed SCN authorised entities? Kindly provide a detailed response with justification.

Tata Communications Response:

We have following additional inputs for consideration:

- There is a need to establish a coherent regulatory and policy framework to support emerging Direct-to-Device (D2D) satellite services. Such a framework should promote regulatory harmonisation, particularly for cross-border D2D operations and spectrum access, and guide regulators in adopting flexible, technology-neutral licensing and authorisation regimes. It should also clearly define the role of D2D services in the provision, regulation, and authorisation of emergency and SOS communications, especially during disasters and network outages. In addition, the framework should address device and chipset certification requirements for Non-Terrestrial Network (NTN)-enabled devices, providing regulatory clarity and ensuring interoperability, security, and compliance across satellite-terrestrial ecosystems.
- A range of business and deployment models also need to be examined to assess the viability of Direct-to-Device (D2D) satellite services, including wholesale partnership models where satellite operators collaborate with mobile network operators, proprietary Mobile Satellite Service (MSS) consumer offerings developed in partnership with smartphone and device manufacturers for specific use cases, and wholesale IoT-focused Non-Terrestrial Network (NTN) models integrated with MVNOs. D2D should also be evaluated as a means of extending coverage to rural, remote, and sparsely populated regions, including large desert areas in certain geographies, while carefully assessing its scalability and long-term sustainability. Further considerations include device compatibility, particularly whether future smartphones require hardware or software modifications, and the cost-effectiveness of deploying D2D services at scale to support economically viable mass-market adoption.

Q21 Any other inputs or suggestions related to the use of spectrum on SCNs established by the proposed SCN authorised entities may be submitted with proper explanation and justification.

Tata Communications Response:

- In addition to the issues already discussed, it is respectfully submitted that the regulatory framework governing the use of spectrum on Satellite Communication Networks (SCNs) should emphasize administrative assignment, technology neutrality, and efficient spectrum utilisation, while maintaining clear separation between the network and service layers.
- Spectrum use conditions should allow SCN Authorised Entities the operational flexibility necessary to deploy evolving GSO and NGSO architectures, including dynamic beamforming, gateway diversity, and adaptive capacity management, without prescriptive utilisation thresholds.
- The framework should explicitly avoid auction-based or revenue-linked spectrum charges, prevent duplication of levies across the SCN and service layers, and ensure that spectrum obligations are proportionate to the wholesale, infrastructure-centric role of SCN entities.
- Further, sufficient regulatory flexibility should be built in to accommodate future WRC outcomes, emerging services such as Non-Terrestrial Networks and Direct-to-Device capabilities (where permitted), and convergence with terrestrial networks, while ensuring interference protection, national security compliance, and adherence to ITU Radio Regulations.
- Such an approach will promote investment certainty, efficient spectrum use, and scalable growth of satellite communications in India.

Q22 Regarding the agreement between SCN Authorised entity and a Service Authorised entity providing FSS/ MSS to the end user, for provision of SCNaaS to the Service Authorised entity, which may or may not include provisions for utilisation of FSS/ MSS spectrum assigned to the Service entity, is there a need to regulate charges exchanged between the two entities under such an agreement? If yes, what would be the possible parameters, including SLA parameters, Spectrum utilisation etc., which would form the basis of regulation? Please provide your response with justification.

Tata Communications Response:

- There is no need to regulate the charges exchanged between an SCN-authorized entity and a Service-authorized entity for provision of Satellite Communication Network as a Service (SCNaaS), whether or not such arrangements include utilisation of FSS and/or MSS spectrum assigned to the service-authorized entity.
- A market-driven, commercially negotiated framework, supported by light-touch regulatory safeguards, is most appropriate for determination of charges given the wholesale and enabling nature of SCNaaS.
- Regulatory oversight should be ex-post and issue-based, not ex-ante or tariff-driven.

This approach aligns with the wholesale nature of SCNaaS, supports investment and innovation, ensures regulatory consistency, and enables efficient development of India's satellite communication ecosystem.

Q23 In case of an agreement between an SCN Authorised entity and a Service Authorised entity providing D2D services using MSS spectrum, for provision of SCNaaS to the Service Authorised entity, which may or may not include provisions for utilisation of MSS spectrum assigned to the Service entity amongst other possible spectrum utilisation arrangements, is there a need to regulate charges exchanged between the two entities under such an agreement? If yes, what would be the possible parameters, including SLA parameters, Spectrum utilisation etc., which would form the basis of regulation? Please provide your response with justification.

And

Q24 In case of an agreement between an SCN Authorised entity and a Service Authorised entity providing D2D services using IMT spectrum, for provision of SCNaaS to the Service Authorised entity, which may or may not include utilising spectrum for feeder link assigned to the service entity, besides utilising IMT spectrum assigned to the Service Authorised entity, is there a need to regulate charges exchanged between the two entities under such an agreement? If yes, what would be the possible parameters, including SLA parameters, Spectrum utilisation etc., which would form the basis of such regulation? Please provide your response with detailed justification.

Tata Communications Response to Q23 and Q24:

- In our considered view, there is no need for ex-ante regulatory intervention in pricing or charges exchanged between an SCN Authorised Entity and a Service Authorised Entity for provision of SCNaaS, whether for D2D services using MSS spectrum or IMT spectrum, including cases involving utilisation of spectrum assigned to the service entity or feeder links. Such arrangements are best governed through commercially negotiated, bilateral agreements, as the parties operate at different layers of the value chain and possess the necessary information to structure viable business models.
- Regulatory price controls or mandated charging parameters could constrain innovation, deter investment, and undermine the flexibility required for emerging D2D services. Regulatory oversight should instead be principle-based, limited to ensuring transparency, non-discrimination, and avoidance of anti-competitive conduct, with reliance on general competition law and ex-post intervention where required.
- Service-level parameters, spectrum utilisation terms, and performance benchmarks should be left to commercial negotiation, reflecting the diversity of technologies, use cases, and risk allocation models applicable to D2D services.

Q25. Should the charges paid by the Service Authorised entity (providing either FSS, MSS or D2D service to the end user) to SCN Authorised entity for provisioning of Satellite Communication Network as a Service (SCNaaS), be permitted to be deducted from ApGR of the Service Authorised entity for the purpose of arriving at AGR for levy of License/ Authorisation Fees and Spectrum charges? Please provide your response with justification.

Q26. If the answer to the above question is no, please suggest the methodology for considering such charges in determination of AGR of both the service authorised and SCN

authorised entities, for purposes of levying Authorisation/ License fees & Spectrum Charges? Please provide your response with justification.

Tata Communications Response:

- The charges paid by a Service Authorised Entity to an SCN Authorised Entity for provisioning of Satellite Communication Network as a Service (SCNaaS), for delivery of FSS, MSS or D2D services, should be allowed as a deductible pass-through item from Adjusted Gross Revenue (ApGR) while computing Gross Revenue (GR)/Adjusted Gross Revenue (AGR) for the purpose of levy of Authorisation/License Fees and Spectrum Usage Charges. Such SCNaaS charges constitute payments towards use of telecom network infrastructure and are not revenues accrued from provision of telecommunication services to end users, consistent with the settled principles governing AGR deductions for inter-operator charges under DoT licence frameworks.
- Non-allowance of such deduction would result in double counting of the same revenue, first at the service layer and again at the network layer, thereby distorting the layered authorisation framework envisaged under the Telecommunications Act, 2023.
- Moreover, in the absence of such deduction, the same underlying revenue would be subjected to multiple levies—first at the service layer and again indirectly at the network layer—thereby distorting business viability and discouraging adoption of the SCNaaS model. Accordingly, AGR computation should ensure that SCNaaS charges are included in the relevant ApGR of the SCN Authorised Entity, where applicable, and excluded from the AGR of the Service Authorised Entity, thereby ensuring clear attribution of revenue and levies at the appropriate regulatory layer and preserving neutrality between network and service providers.

Q27. What should be the appropriate definition of GR, AGR, and ApGR for SCN Authorisation, including the relevant items of revenue, exclusions and deductions? Additionally, are there any operational or non-operational revenue elements specific to SCN Authorised entities that should be considered within the scope of definitions of GR, AGR and ApGR? Please provide detailed response with specific line items of revenue, exemptions and deductions, and specific definitions for GR/ApGR/AGR.

Tata Communications Response:

The definition of revenue for Satellite Communication Network (SCN) Authorised entities should focus on services purely from satellite communication services.

Suggested definitions are as follows:

- **Gross Revenue (GR):** “Revenue for the purpose of levying LICENSE fee as a percentage of revenue should mean the Gross revenue accruing to the Licence by way of providing SCN services under the SCN License including revenue from supplementary/ Value added services. The other components of revenue should include satellite bandwidth, gateway services, installation charges, late fees, interconnection charges.

- **Applicable Gross Revenue (ApGR):** No question of ApGR as Gross Revenue excludes revenue from other than SCN services.
- **Adjusted Gross Revenue (AGR):** GR minus permitted deductions (pass-through or interconnection charges paid to other SCN service providers and taxes).

Q28. In case FSS/MSS or any other spectrum is assigned to the Satellite Communication Network (SCN) authorised entities for provisioning of SCNaas to Service authorised entities, what should be the broad financial terms & conditions of such an assignment?

Tata Communications Response:

- Where FSS, MSS or other satellite spectrum is assigned to SCN Authorised Entities for provisioning of SCNaas, the financial terms should be light-touch, predictable, and aligned with the wholesale, network-only role of such entities.
- Spectrum should be assigned through administrative allocation, with charges limited to a reasonable one-time assignment fee and non-revenue-linked spectrum usage charges and should exclude any AGR-based levies or licence fees applicable to service providers.
- Financial conditions should avoid double levy, remain stable over the assignment tenure aligned with satellite lifecycle, and support efficient spectrum use and long-term investment certainty.

Q29. Should the spectrum charges for Satellite Communication Network (SCN) authorised entities be based on the spectrum charging framework as per the Recommendations dated 09.05.2025 applicable for Satellite based commercial communications services? Accordingly, what should be the appropriate spectrum charging framework and spectrum charges applicable for a SCN Authorised entity? Please provide your response with detailed justification.

Tata Communications Response:

- TRAI's recommendations dated 09.05.2025 on the Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services, read with TRAI's response dated 08.12.2025, should be adopted as the base framework for assignment of NGSO-based FSS and GSO/NGSO-based MSS spectrum, with SCN-specific modifications to reflect the wholesale, network-layer role of SCN Authorised Entities under the SCNaas model, including exclusion of retail service obligations and revenue-linked levies.
- Assignment of GSO-based FSS spectrum should follow analogous principles, with appropriate adaptations recognising the long operational life, stable interference environment, and gateway-centric architecture of GSO systems.

Q30. If spectrum charges are to be levied on the basis of AGR of the SCN Authorised entity, are there any specific operational/ non-operational revenue items that should be excluded from AGR for the purpose of determination of spectrum charges? Please provide your response with detailed justification.

And

Q31. If the spectrum charges are not to be levied on basis of AGR of the SCN Authorised entity, what should be the appropriate spectrum charging mechanism and the corresponding level of spectrum charges applicable to Satellite Communication Network (SCN) authorised entities? Please provide your response with detailed justification.

Tata Communications Response to Q30 and Q31:

- Only revenue earned from SCN services should be considered for the computation of Gross Revenue.
- Specific operational and non-operational revenue items be expressly excluded from the AGR base used for determining spectrum charges.

Kindly also refer our response to Q27 as well.

Q32. In case D2D services are permitted to be provided using the MSS frequency bands such as L & S bands, what should be the appropriate spectrum charging framework for such bands when utilised for provision of D2D satellite based services? Please provide detailed justification for your response, including the methodology for determination of such spectrum charges, if required.

And

Q33. In case D2D services are permitted to be provided using the IMT spectrum assigned to the Service Authorised entity ('partnering entity') providing D2D satellite-based telecommunication services, should any additional spectrum charges be levied on the Service Authorised entity ('partnering entity') for use of IMT spectrum in the provision of satellite based D2D services? If yes, what should be the basis and quantum of such additional spectrum charges payable by the Service Authorised entity to the Government? In either case, please provide detailed justification for your response, including the detailed methodology for determination of such spectrum charges.

Tata Communications Response to Q32 and Q33:

- If Direct-to-Device (D2D) services are permitted using MSS frequency bands such as L and S bands, the spectrum charging framework should follow a light-touch, administratively determined approach, with modest, non-revenue-linked spectrum usage charges reflective of the limited bandwidth, shared-use nature, and public-interest orientation of D2D services. Charges should be based on objective parameters such as bandwidth assigned, geographic coverage, and coordination constraints, rather than end-user revenues, and should aim to support experimentation and gradual market development.
- Similarly, where D2D services are provided using IMT spectrum already assigned to the Service Authorised Entity, no additional spectrum charges should be levied merely due to the satellite-based mode of delivery, as the spectrum has already been priced and assigned through existing mechanisms. Imposing incremental charges would risk double levy, distort technology-neutral spectrum use, and deter innovation. Overall, any spectrum charging framework for D2D services should remain minimal, transparent, and non-duplicative, supporting efficient spectrum utilisation while safeguarding existing terrestrial services and enabling emerging satellite-terrestrial convergence.

Q34. In case spectrum is assigned to Satellite Communication Network (SCN) authorised entities, what should be the appropriate payment terms for spectrum charges payable by Satellite Communication Network (SCN) authorised entities? Please provide your response with justification.

And

Q35. In case Minimum Spectrum Charges are to be applicable for SCN authorised entities, what should be the payment terms for the minimum spectrum charges for SCN authorised entities? Please provide your response with detailed justification.

Tata Communications Response:

- Where spectrum is assigned to Satellite Communication Network (SCN) authorised entities, the payment terms should be simple, predictable, and aligned with the infrastructure-only nature of SCN operations. Spectrum usage charges should be payable on a periodic (annual) basis, preferably in advance, and clearly delinked from service revenues, with flexibility to accommodate long satellite lifecycles and high upfront capital investment. If Minimum Spectrum Charges (MSC) are prescribed, such charges should function only as a floor amount to ensure efficient spectrum holding, payable annually, and set at a modest and proportionate level to avoid penalising early-stage or under-utilised networks. The framework should avoid lump-sum upfront payments, prohibit revenue-linked levies, and ensure that any revision in charges is prospective, following due consultation, so as to preserve investment certainty and avoid financial stress during initial deployment phases.
- TRAI's recommendations dated 09.05.2025 on the Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services, read with TRAI's response dated 08.12.2025, should be adopted. Key aspects are as follows:
 - Satellite spectrum be assigned through administrative allocation with non-revenue-linked spectrum usage charges;
 - Spectrum charges be payable on a periodic (annual) basis, rather than as high upfront payments;
 - A concept of Minimum Spectrum Charges may be applied to ensure disciplined spectrum holding, without linking charges to end-user revenues; and
 - The overall charging framework remain light-touch, predictable, and aligned with international best practices, recognising the long gestation period and capital-intensive nature of satellite systems.

Q36. What should be the minimum equity and minimum networth requirements for a Satellite Communication Network (SCN) authorised entity? Please provide detailed justification in support of your response.

Tata Communications Response:

It is suggested that the minimum equity and net-worth requirements for SCN Authorised entities should be proportionate, realistic, and aligned with the capital-intensive nature of satellite networks including space and ground segment investments, while avoiding exclusion of capable entrants.

The benchmark should keep a balance between being reliable and encouraging competition. It is set lower than the limits for retail service providers because SCN entities work at the wholesale network level and satellite projects take a long time to develop.

Q37. What should be the entry fee for proposed Satellite Communication Network (SCN) authorisation? Please provide detailed justification in support of your response.

Tata Communications Response:

- The entry fee for the proposed Satellite Communication Network (SCN) authorisation should be modest, one-time, and aligned with the principles adopted by DoT for other similar proposed network service authorisations. Given the wholesale, network-layer role of SCN authorised entities and the high capital expenditure inherent in satellite infrastructure, the entry fee should be significantly lower than that applicable to retail telecom service authorisations.
- A light-touch entry fee will ensure seriousness of applicants while avoiding undue entry barriers, promoting wider participation, investment certainty, and faster deployment of satellite networks. Such an approach would be consistent with DoT's established licensing philosophy and support the scalable growth of the SCNaas ecosystem under the Telecommunications Act, 2023.

Q38. What should be the rate of Authorisation Fee for a Satellite Communication Network (SCN) authorised entity? Please provide detailed justification in support of your response.

Tata Communications Response:

- There shall be no authorisation fee payable by the SCN authorised entity considering the fact that the SCN authorisation is intended to cover network-layer, infrastructure-only activities, involving the establishment, operation, and maintenance of satellite communication networks and wholesale provisioning of satellite capacity. As SCN authorised entities do not provide retail telecommunication services or generate end-user service revenues, imposition of an authorisation fee—particularly a recurring or revenue-linked fee—would be inconsistent with the principles underpinning network-centric authorisation frameworks.
- Waiving the authorisation fee ensures regulatory consistency, avoids double levy, supports investment in capital-intensive satellite infrastructure, and aligns with the objectives of the Telecommunications Act, 2023.

This approach is fully aligned with the Department of Telecommunications' draft network authorisation framework, under which no authorisation fee is recommended for any of the proposed network service authorization recognising its infrastructure -only nature.

Q39. Should a Minimum Authorisation Fee be applicable for the proposed SCN Authorisation? If yes, what should be the Minimum Authorisation Fee be for the proposed SCN Authorisation? Please provide detailed justification in support of your response.

Tata Communications Response:

No Minimum Authorisation Fee should be prescribed for the proposed Satellite Communication Network (SCN) authorisation. The SCN authorisation is intended for network-layer, infrastructure-only activities, involving the establishment, operation, and maintenance of satellite communication networks and wholesale provisioning of capacity, without any direct provision of telecommunication services to end users. In line with DoT's approach under draft network services authorisation frameworks, where authorisations are designed to facilitate infrastructure deployment rather than generate recurring regulatory revenue, the imposition of a minimum authorisation fee would be unnecessary and inconsistent with overall ease of doing business objectives.

Q40. What should be the appropriate payment terms & conditions for Authorisation Fees? Please provide detailed justification in support of your response.

Tata Communications Response:

The payment terms and conditions for Authorisation Fees applicable to Satellite Communication Network (SCN) authorisation should be simple, predictable, and non-revenue-linked, consistent with TRAI's recommendations dated 09.05.2025 on the Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services.

Q41. What should be the terms and conditions for Bank Guarantees, including both Performance Bank Guarantee (PBG) and Financial Bank Guarantee (FBG), for SCN authorised entities? Please provide detailed justification in support of your response.

Tata Communications Response:

We propose there should not be any Performance Bank Guarantee and Financial Bank Guarantee for SCN authorised entities. Instead of provision of BGs, this should be replaced by an Undertaking (on Non-Judicial Stamp Paper) from the licensee company at the time of signing the License agreement for payment of dues. This will be sufficient to safeguard Licensor's dues.

Q42. What should be the application processing fee for Satellite Communication Network (SCN) authorised entity? Please provide detailed justification in support of your response.

Tata Communications Response:

The application processing fee for Satellite Communication Network (SCN) authorised entity should be of Rs 10,000 in line with processing fee proposed in the draft DoT network service authorisation Rules.

Q43. Apart from the financial provisions discussed earlier, are there any other financial terms and conditions that should be made applicable for the proposed Satellite

Communication Network authorisation? Kindly provide a detailed response with justifications.

Tata Communications Response:

In addition to the financial provisions already outlined—such as the entry fee, authorisation fee, spectrum charges, bank guarantees, and application processing fee, it is submitted that no further or special financial requirements should be imposed for the proposed Satellite Communication Network (SCN) authorisation.