

Ref. No.: Nelco/TRAI/26-27/012

Date: May 13, 2026

To
The Advisor
(Networks, Spectrum and Licensing)
Telecom Regulatory Authority of India (TRAI)
Tower F, NBCC World Trade Centre
Nauroji Nagar New Delhi – 110029

Kind Attention: Shri Akhilesh Kumar Trivedi

Subject: Submission of Comments on TRAI Consultation Paper “Framework for Satellite Communication Network Authorization and Assignment of Spectrum to Satellite Communication Network Providers”

Dear Sir,

This with reference to the Telecom Regulatory Authority of India’s Consultation Paper on TRAI Consultation Paper “Framework for Satellite Communication Network Authorization and Assignment of Spectrum to Satellite Communication Network Providers”

2. At the outset, we would like to commend TRAI for issuing a comprehensive consultation Paper.

The consultation reflects a progressive approach toward establishing a transparent, technology-neutral, and investment-friendly spectrum assignment regime for satellite communications in India.

3. In response to the issues raised in the Consultation Paper, we are pleased to submit our detailed comments (enclosed herewith).

4. We trust that our inputs will assist TRAI in finalising a robust and forward-looking framework that balances efficient spectrum utilisation, fair competition, and rapid rollout of satellite-based connectivity services across India.

We would be pleased to provide any further clarifications or participate in stakeholder discussions, if required.

Thank you.

Yours faithfully,
For Nelco Limited



Arun Kumar Bhardwaj
Contact No.: 8010111009

Copy to:
Principal Advisor (NSL), TRAI

Nelco Response on

'Framework for Satellite Communication Network Authorization, and Assignment of Spectrum to Satellite Communication Network Providers'

Nelco would like to thank TRAI for giving opportunity to Nelco Limited to respond to the consultation paper on “*Framework for Satellite Communication Network Authorization, and Assignment of Spectrum to Satellite Communication Network Providers*”. At the outset we commend TRAI for coming up with a timely & important consultation paper to establish regulatory framework which aligns with technological development in satellite communications.

This Consultation paper is apt on time considering the evolution of new services, business models and more satcom & terrestrial hybrid solutions. This consultation paper envisages ‘Satellite Communication Network’ authorization under section 3(1)(b) of the Telecom Act 2023 wherein the authorization holder will provide services to Service authorization entities only and will not provide services to end customers directly.

Satellite services over years have evolved from being traditional low-speed Geostationary network in S, L, India-C band, Ku to HTS (high throughout satellite) Geostationary services in Ka, Q & V bands as additional frequency bands. NGSO broadband services offer lower latency with much higher speeds, making it suitable for various use-cases. In addition, NGSO narrowband satellites in S-band, L-band and/or its adjacent band offer additional IOT (data only) use-cases as well as enable cellular phone services via satellite.

There are various variables in play, in terms of **satellite orbit type**(GSO – NSGO), **frequency bands** (S, L, KU, KA & higher bands), **traffic** (broadband, narrowband), supported **services**(data and/or voice), user **mobility** (Fixed vs mobility) etc.

Considering above , it is important to categorize the satellite-based services from user perspective, considering existing regulatory framework in India and its further augmentation.

1. Data/Internet Services (without any PSTN/PLMN voice integration)
 - FSS – GSO (including ESIM*) – in various satellite bands including S-band, L-band
 - FSS – NGSO (including ESIM) - in various satellite bands including S-band & L-band
2. Voice + Data + Messaging services (PLMN services using satellite as media)
 - Direct to Cellular phone (D2C/D2D**) Services using NGSO

*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)

The categorization and definition of services are important as they form our basis of response to queries raised in the consultation paper. Following is the summary of the response:

1. We welcome & support the introduction of the Satellite communication network (SCN) authorization under Network authorizations. The openness to look at the option of allocating spectrum to SCN authorization, option of Baseband to be owned & managed by SCN is a welcome step and in-line to the changing technology & services requirements.
2. For Data/Internet Services, we would like to submit that for “FSS-GSO (including ESIM)” currently the baseband is put by the VSAT service licensee and spectrum is also allocated to the VSAT service licensee.

It is to be noted that TRAI has recommended a Satellite Earth Station Gateway (SESG) authorisation, which is included in the proposed Network Authorisation framework issued by DoT in September 2025. Under this framework, the SESG authorisation holder may establish and operate satellite gateways; however, the baseband will be owned and deployed by the respective partnering service licensee, and the spectrum will also be assigned to that service licensee.

- There is no fundamental change in GSO technologies and SESG network authorisation is apt for serving the requirements of FSS-GSO services including ESIM, which is allowed under FSS services. It is to be noted that FSS-GSO uses various spectrum bands including S-band and L-band spectrum, which are primarily used to serve ESIM requirements under FSS.
3. For Data/Internet Services, we would like to submit that for “FSS-NGSO (including ESIM)” services, the satellite & earth-station gateway setup is quite different from GSO – FSS. NGSO services use constellation of satellites serving to a customer requirement. There is one consolidated Baseband & NMS system which is utilised by multiple partnering entities/VNOs. Technically not feasible that each partnering entity/VNO has its share of spectrum, and such discrete combination of spectrum may be used by NGSO satellites, similarly Baseband & NMS required to manage the customer traffic across this spectrum is also common.
 - Considering above, for Data/Internet Services on Fixed or mobile system (FSS & ESIM) using NGSO system, the spectrum should be allocated only to Satellite Communication network entity and not to the partnering entity.
 4. For enabling PLMN voice services using satellite -Direct to Cellular phone (D2C or D2D) services, NGSO-narrowband satellite system operating in S-band, L-band, or its adjacent bands (IMT bands) is most suitable with low power requirement & flexible user device formats – making it suitable for cellular phone devices.
 - Considering above, for PLMN Voice Services using NGSO system, the spectrum earmarked for satellite services (like S-band and L-band) should be allocated only to the Satellite Operator with ITU’s seniority allocation for same S-band or L-

- band spectrum or its authorized partner, a Satellite Communication Network Authorized entity, in India.
5. SCN authorised entity will use NGSO system for delivering Data/Internet or PLMN Voice (D2C or D2D) services, It is important for SCN should be mandated to extend the control and visibility to the partnering entity.
 6. Satellite Communication Network (SCN) authorised entity will be serving only to the Partnering entities (wholesale) and thus mutual dependency between SCN & Partnering entities is quite high. It is suggested that light touch reference agreement initially. The need for such reference agreement may be reviewed periodically (say after 3yrs) and further need for such reference agreement may be decided.
 7. Required modification should be done in NFAP to include:
 - a) For IMT bands which can be used for D2D Services, these specific bands should also have mention in NFAP as MSS spectrum, on secondary basis
 - b) For S-band L-band, there are more than 1 Lac+ of user terminals operational GSO satellites (S-band & L-band). These are currently allowed under FSS and are called ESIM (Earth Station in Motion). NFAP should also be modified to include mention of ESIM services alongside MSS services on a primary basis, for the relevant S-band and L-band frequencies.
 8. Spectrum usage charges should be based on percentage of AGR, wherein SCN authorised entity pays as %age of its AGR wherein for partnering entity selling services to end customer, it should be only %age of AGR on differential revenue (its Revenue – cost paid to SCN). This will avoid double taxation and is inline with the principle of SUC charging to VNO and NSO.
 9. Entry Barrier for SCN services, in terms of entry fee, processing/administrative fee, Back guarantee requirements should be kept minimal to promote uptake of SCN authorisation.

We would like to put forward again that Satcom Services should be retained as separate category of Service authorisation rather than merging it under Internet or Access Service authorisation. Entities with Satcom Services authorisation only should be allowed to partner with SCN Authorized entity for all satcom related scenario except for D2D satellite services wherein Access Service authorisation entity providing terrestrial cellular services only should be partnering with such SCN Authorized entity.

Detailed question-by-question response is as given below, which is aligned to the issues raised in the Preamble/Background given above :

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

Nelco response:

Proposed Eligibility Conditions for SCN Authorization

- i) Companies incorporated in India under the Companies Act, 2013;
- ii) Satellite operator, authorized by IN-SPACe or a subsidiary of a Satellite operator or Company having agreement with Satellite operator related to establishment, operation & maintenance of Satellite Communication Network.

Area of Operation

- Pan-India including territorial waters and extended economic zone.

Satellite communication networks, by architecture, provide coverage over wide geographic footprints and cannot be logically confined to Licensed Service Areas (LSAs). Applying LSA-based restrictions would be Technically inappropriate, operationally inefficient, and Inconsistent with global satellite regulatory practices.

A national area of operation allows optimal utilisation of satellite capacity and enables consistent service delivery across remote, rural, maritime, and disaster-prone areas.

Validity Period of SCN Authorisation

- Recommended Validity: 20 years, with provision for extension in blocks of 10 years.

Satellite systems typically involve Satellite lifecycles of 15–20 years, Significant upfront capital investments, Long-term contractual and financing commitments. A long and predictable authorisation period is essential to ensure Investment certainty, Bankability of satellite projects, and Alignment with the validity periods of spectrum assignments and satellite filings. Shorter tenures would adversely affect the economic viability of satellite communication networks.

Scope of SCN Authorisation

The Scope of SCN Authorisation should cover:

- Establish, operate, maintain, and expand Satellite Communication Networks;
- Establish and operate satellite gateway earth stations in India;
- Obtain satellite bandwidth from Satellite operator

- Satellite spectrum allocation & approvals from relevant government agencies, subject to spectrum allocation policy to SCN.
- Provide Satellite Communication Network as a Service (SCNaaS) to service-authorized entities.

Services Supported Through SCN

- Fixed Satellite Service (FSS);
- Earth Station in Motion
- Mobile Satellite Service (MSS) including Direct-to-Device (D2D) services via satellite

Conclusion

A well-designed SCN Authorisation framework—featuring clear eligibility, pan-India operation, long-term validity, and a network-only scope—will provide a robust foundation for India’s satellite communication ecosystem. It will enable efficient deployment of advanced satellite networks, including NGSO constellations and D2D capabilities, while safeguarding national security, spectrum integrity, and investment sustainability.

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.

1. General Conditions

The general terms and conditions applicable to the proposed Satellite Communication Network (SCN) authorisation should recognise that SCN is a network-layer authorisation under Section 3(1)(b) of the Telecommunications Act, 2023, distinct from service authorisations under Section 3(1)(a).

Accordingly:

- SCN Authorised entities should be permitted to establish, operate, maintain, and expand satellite communication networks and related infrastructure.
- SCN Authorisation should not permit direct retail service provision to end users, thereby ensuring a clear functional separation between network and service layers.
- SCN Authorised entities should provide Satellite Communication Network as a Service (SCNaaS) to authorised service providers on non-discriminatory and commercially negotiated terms.

Clear demarcation between network and service roles avoids regulatory overlap, preserves a level playing field among service providers, and aligns with modern telecom unbundling principles.

2. Technical Conditions

The technical conditions for SCN Authorisation should be technology-neutral, standards-based, and non-prescriptive, allowing flexibility across diverse satellite architectures (GSO, NGSO, hybrid).

Key technical principles should include:

- Compliance with ITU Radio Regulations, National Frequency Allocation Plan (NFAP), and applicable WPC / NOCC coordination processes.
- Support and alignment with 3GPP standards, including Non-Terrestrial Networks (NTN), to ensure interoperability and enable use of standard, unmodified consumer and enterprise devices.
- Flexibility to deploy satellite-only or hybrid satellite-terrestrial networks.
- Spectrum use strictly in accordance with the allocated service (FSS, MSS, etc.).

Satellite technologies evolve rapidly, especially NGSO systems. Overly prescriptive technical conditions risk rendering regulatory frameworks obsolete and may delay deployment of innovative services such as D2D and hybrid satellite-mobile connectivity.

3. Operating Conditions

Key operating requirements should include:

- Maintenance of Network Operations Centres (NOCs) and operational systems capable of monitoring, controlling, and managing the satellite communication network, within India
- Baseband and Network Control, where SCN entities deploy or manage baseband systems as part of the satellite network:
- Service-authorized entities should be provided appropriate visibility and interfaces to manage service quality, provisioning, and customer experience.

NGSO satellite networks rely on centralised and highly integrated control systems. Flexibility in operating models is essential to ensure efficient network management and service quality.

4. Security-Related Conditions

The following security conditions should apply:

- All user traffic originating from or terminating within India must be routed via satellite gateways located in India, in line with DoT security directives.
- 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.
- Space Segment Operations: Routine satellite spacecraft operations such as Telemetry, Tracking and Command (TT&C) and constellation management should continue to be governed by space-sector frameworks under DoS / IN-SPACe, and should not be subjected to duplicative telecom regulatory conditions, provided national security requirements are met.

A balanced approach ensures that national security objectives are fully met, while avoiding regulatory duplication between the space and telecom sectors that could delay deployment or increase operational complexity.

Conclusion

The terms and conditions for the proposed Satellite Communication Network Authorisation should be secure, robust, and forward-looking, while remaining flexible, technology-neutral, and proportionate to the network-only role of SCN entities. By focusing on outcome-based regulation, alignment with international standards, and avoidance of unnecessary duplication, TRAI can enable rapid deployment of advanced satellite networks and hybrid services while safeguarding national security, spectrum integrity, and service reliability.

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.

Nelco Response:

Entities with Satcom Services authorisation only (Like Commercial VSAT CUG or GMPCS) should be allowed to seek SCaaS from SCN Authorized entity for all satcom related scenario except for D2D satellite services. For D2D services, Access Service authorisation entity providing terrestrial cellular services should be permitted to seeks SCNaaS from such SCN Authorized entity.

VSAT service providers provide satellite communication services to its customer and once the SCN is enabled, it will take SCNaaS from SCN authorized entity to provide data & internet services.

SCN authorisation is considered as Network authorization under 3(1)(b) of Telecommunication Act,2023 and will provide services to Service Authorisation holders. Herein the Service licensee like VSAT service licensee, Access Service Licensee, Internet Service Licensee should be considered as NSOs for Satellite Communication Services. Respective NSO may have its respective VNOs to sell these services in the market.



Considering above arrangement, VNO serving by partnering with NSO will serve the purpose though for additional flexibility, VNOs contracting with Satellite Communication Network Authorized Entity may also be considered.

Existing licensing regime in FSS-GSO also covers User Terminal/ Earth Stations in Motion (ESIM) subject to compliance with relevant TEC standard.

NGSO systems are capable to track & identify the customer location and geofence it. In addition, the User terminals are also there which are capable to deliver the communication services at a fixed location or COTP (Communication on the pause) or COTM (Communication on the move).

Considering above, VSAT service provider should be allowed to offer Fixed satellite services (FSS) including ESIM and Mobile satellite services (MSS) services.

Q4. Whether the SCN authorised entity establishing, operating, maintaining, or expanding the baseband system along with 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.

Nelco Response: As SCN authorized entity is providing services only to Service authorized entities and will not be selling its services to end users, it is important that they extend the control, visibility, resource allocation and management of the telecommunication services to the partnering entity.

- a) In the absence of such visibility & control available to the partnering service authorized entity, it might have impact on service quality & SLA delivery to end user.
- b) If such control, visibility, resource allocation and management of the telecommunication services is not extended then Service Authorized entity may render to such reseller of the SCN services to end user thus defeating the very essence of SCN being a Network Authorization rather than a Service Authorization.

Thus, 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, though the commercial & technical arrangement should be left to be mutually agreed between SCN & Partnering Service Authorization entity.

The satellite networks, particularly NGSO systems, rely on centralised and tightly integrated baseband and resource management architectures, and rigid regulatory prescriptions could adversely affect network efficiency, scalability, and service quality.

A principle-based, light-touch regulatory approach, coupled with clear delineation of responsibilities in commercial agreements, would best support innovation, operational efficiency, and accountability while preserving regulatory objectives.

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

Nelco Response: Satellite Communication Network authorized entity should have agreement with a space segment provider for establishing, maintaining & operating the SCN in respect of the satellite systems of the space segment provider in India,

Satellite Communication Network authorized is required to take Satellite bandwidth from IN-SPACe authorized Space Segment provider or its subsidiary.

IN-SPACe authorization is not required for setting up of SCN in India.

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.

Nelco Response : The SCN authorised entity & Services Authorised entity are vertically related and thus will be complimenting each other to ensure mutual success. They have incentive to enable each other rather than imposing any restrictive practices.

Thus, there is no need to mandate a standard or binding reference agreement between entities holding the proposed Satellite Communication Network (SCN) authorisation and Service Authorized entities.

The commercial arrangements between SCN-authorised entities and service-authorised entities should remain market-driven, flexible, and subject to mutual agreement, rather than governed by a pre-defined regulatory template.

Above approach best balances regulatory oversight with innovation, scalability, and ease of doing business, while supporting the effective rollout of satellite communication networks and services in India.

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.

Nelco Response: No additional interconnection issues beyond those already captured in TRAI's consultation dated 10.11.2025 require to be addressed in the present consultation.

Existing interconnection principles and regulations are sufficient and appropriate to govern interconnection involving SCN-authorized entities.

Interconnection arrangements should remain standards-based, contractually agreed, and commercially flexible, without additional satellite-specific regulatory mandates.

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

No Comments.

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

Fixed Satellite Service (FSS);

Mobile Satellite Service (MSS);

Direct-to-Device (D2D) Service via satellite by using MSS spectrum;

Direct-to-Device (D2D) Service via satellite by using IMT spectrum?

Kindly provide a detailed response with justification.

Nelco Response:

Nelco Response: It is important to categorize the satellite-based services from user perspective, considering existing regulatory framework in India and its further augmentation.

- Data/Internet Services (without any PSTN/PLMN voice integration)
 - FSS – GSO (including ESIM*) – in various satellite bands including S-band, L-band
 - FSS – NGSO (including ESIM) - in various satellite bands including S-band & L-band
- Voice + Data + Messaging services (PLMN services using satellite as media)
 - Direct to Cellular phone (D2C/D2D**) Services using NGSO

*ESIM : Earth Station In Motion : the user terminal on moving platform (not handheld)

** D2C/D2D : Satcom services delivered directly from satellite from/to customer's cellular phone(handheld)

The categorization and definition of services are important as they form our basis of response to queries raised in the consultation paper. Following is the summary of the response:

1. For Data/Internet Services, we would like to submit that for “FSS-GSO & including ESIM” currently the baseband is put by the VSAT service licensee and spectrum is also allocated to the VSAT service licensee.

- It is to be noted that TRAI has recommended a Satellite Earth Station Gateway (SESG) authorization, which is included in the proposed Network Authorizations framework issued by DoT in September 2025. Under this framework, the SESG authorization holder may establish and operate satellite gateways; however, the baseband will be owned and deployed by the respective partnering service licensee, and the spectrum will also be assigned to that service licensee.
 - There is no fundamental change in GSO technologies, and SESG network authorization is apt for serving the requirements of FSS-GSO services including ESIM, which are allowed under FSS services. Considering the above, SCN should not be permitted to provide FSS-GSO services. It is to be noted that FSS-GSO uses various spectrum bands including S-band and L-band spectrum, which are primarily used to serve ESIM requirements under FSS.
2. For Data/Internet Services, we would like to submit that for “FSS-NGSO & including ESIM” services, the satellite & earth-station gateway setup is quite different from FSS-GSO. The NGSO services use constellation of satellites serving to a customer requirement. There is one consolidated Baseband & NMS system which is utilized by multiple partnering entities/VNOs. Technically not feasible that each partnering entity/VNO has its share of spectrum, and such discrete combination of spectrum may be used by NGSO satellites, similarly Baseband & NMS required to manage the customer traffic across this spectrum is also common.

Considering the above, SCN should be permitted to provide FSS-NGSO (including ESIM) services.

3. For enabling PLMN **voice services** using satellite -Direct to Cellular phone (D2C or D2D) services will also be provided using NGSO-narrowband satellite systems.
- Considering the above, SCN should be permitted to provide PLMN (D2D) services using S-band/L-band spectrum.
 - SCN should also be permitted to provide PLMN (D2D) services using the IMT spectrum.

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.

Nelco Response: D2D service via satellite using IMT spectrum should be permitted in a calibrated manner, rather than being deferred entirely until after WRC-2027.

Device and chipset ecosystems are already evolving to support satellite-IMT integration, reducing technical uncertainty.

Allowing early deployments will help validate technical and operational assumptions in the Indian context.

WRC-27 is only going to enable and formalize the IMT spectrum availability for D2D services but will not have a significant impact on technology and device eco-system.

Initial IMT-based D2D deployments can be enabled through partnerships with Access Service Providers (ASPs) holding IMT spectrum; with SCN-authorized entities acting strictly as network enablers, not retail service providers.

This preserves the integrity of IMT spectrum assignments and aligns with the network-service separation under the Telecommunications Act, 2023.

IMT spectrum has been assigned through auctions with associated rollout and quality-of-service obligations. Any D2D use of IMT spectrum must:

- Be subordinate to terrestrial IMT operations.
- Not compromise existing or planned terrestrial network performance.
- Be implemented with robust interference management and coordination mechanisms.

Nelco recommends the following approach:

Near Term (Pre-WRC-2027): Û

Permit limited trials and initial commercial deployments of IMT-based D2D services. Û

Restrict such deployments to: Û

- Partnerships with IMT spectrum-holding Access Service Providers;
- Clearly defined geographic and technical parameters.

Post-WRC-2027:

Undertake a comprehensive review of international harmonization decisions, Domestic trial outcomes, Interference and coexistence studies.

Finalise a stable and scalable regulatory framework, including any necessary NFAP modifications or long-term licensing conditions.

Conclusion

In conclusion, the Respondent submits that:

IMT-based D2D services should not be entirely deferred until after WRC-2027, as this would delay tangible public interest and innovation benefits.



A calibrated, partnership-based approach—allowing initial commercial deployments before WRC-2027 and comprehensive framework finalisation thereafter including modifications in NFAP—offers the most balanced and future-proof regulatory path.

This approach enables India to remain aligned with international developments, protect terrestrial IMT networks, and simultaneously advance satellite-enabled connectivity and resilience in the near term.

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 authorized 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 provide a detailed response with justification.

Nelco Response:

1. **For FSS-GSO Services**, as stated earlier, **proposed SESG authorization** along with its terms and conditions **is sufficient, and there is no need for parallel and another network (SCN) authorization.**
2. **For FSS-GSO Services**, if it is decided to go ahead with SCN for FSS-GSO as well then considering a partnering entity will be a VSAT Service provider - **only combination #4 should be allowed.**
3. **For FSS-NGSO Services**, considering NGSO will require a consolidated spectrum which will be shared by multiple partnering entities (Service providers); **only combination #1 should be allowed.**
4. **For PLMN Voice services using satellite (for D2C/D2D services),**

- a. **Using S-band / L-band spectrum:** Satellite spectrum should be assigned only to companies having ITU's seniority allocation of S-band or L-band spectrum or Indian companies having partnership with such companies.
- b. All four combinations should be allowed to have the flexibility of any of the four potential scenarios.

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

Spectrum in the frequency bands allocated for FSS

Spectrum in the frequency bands allocated for MSS

Any other?

Kindly provide a detailed response with justification.

Nelco Response:

Satellite services over years have evolved from being traditional low-speed Geostationary network in S, L, India-C band, Ku to HTS (high throughput satellite) Geostationary services in Ka, Q & V bands as additional frequency bands. NGSO broadband services offer lower latency with much higher speeds, making it suitable for various use cases. In addition, NGSO narrowband satellites in S-band, L-band and/or its adjacent band offer additional IOT (data only) use-cases as well as enables to enable cellular phone services via satellite.

There are various variables in play, in terms of satellite orbit type (GSO – NSGO), frequency bands (S, L, KU, KA & higher bands), traffic (broadband, narrowband), supported services (data and/or voice), user mobility (Fixed vs mobility) etc.

Considering above, it is important to categorize the satellite-based services from user perspective, considering existing regulatory framework in India and its further augmentation.

- **Data/Internet Services (without any PSTN/PLMN voice integration)**
 - o FSS – GSO (including ESIM*) – in various satellite bands including S-band, L-band
 - o FSS – NGSO (including ESIM) - in various satellite bands including S-band & L-band
- **Voice + Data + Messaging services (PSTN/PLMN services using satellite as media)**
 - o Direct to Cellular phone (D2C/D2D**) Services using NGSO

The categorization and definition of services are important as they form our basis of response to queries raised in the consultation paper. Following is the summary of the response:

1. For Data/Internet Services, we would like to submit that for “FSS-GSO (including ESIM)” currently the baseband is put up by the VSAT service licensee and spectrum is also allocated to the VSAT service licensee.

It is to be noted that TRAI has recommended a Satellite Earth Station Gateway (SESG) authorisation, which is included in the proposed Network Authorisation framework issued by DoT in September 2025. Under this framework, the SESG authorisation holder may establish and operate satellite gateways; however, the baseband will be owned and deployed by the respective partnering service licensee, and the spectrum will also be assigned to that service licensee.

- There is no fundamental change in GSO technologies, and SESG network authorization is apt for serving the requirements of FSS-GSO services including ESIM, which are allowed under FSS services. It is to be noted that FSS-GSO uses various spectrum bands including S-band and L-band spectrum, which are primarily used to serve ESIM requirements under FSS.
 - For FSS-GSO, spectrum should be assigned to VSAT service authorization entity only and should not be assigned to SESG/SCN entity.
2. ÛFor Data/Internet Services, we would like to submit that for “FSS-NGSO (including ESIM)” services. The satellite & earth-station gateway setup is quite different from that of GSO – FSS. NGSO services uses constellation of satellites serving to a customer requirement. There is one consolidated Baseband & NMS system which is utilised by multiple partnering entities/VNOs. Technically not feasible that each partnering entity/VNO has its share of spectrum, and such discrete combination of spectrum may be used by NGSO satellites, similarly Baseband & NMS required to manage the customer traffic across this spectrum is also common.
- Considering above, for Data/Internet Services on FSS (including ESIM) using NGSO system, the spectrum should be allocated only to Satellite Communication network entity and not to the partnering entity (service provider).
3. ÛFor enabling PLMN services using satellite -Direct to Cellular phone (D2C/D2D) services, NGSO-narrowband satellite system operating in S-band, L-band, or its adjacent bands (IMT bands) is most suitable with low power requirement & flexible user devices formats – making it suitable for cellular phone devices.
- Considering above, for PLMN Voice Services using NGSO system, the spectrum earmarked for satellite services (like S-band and L-band) should be allocated only to Satellite Communication network entity and not to the partnering entity though it should be allowed to use partnering entity’s IMT spectrum to deliver such specific services, subject to other regulatory compliances.

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, -

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?

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.

Nelco Response: Nelco submits that the **broad policy and regulatory framework for assignment of FSS and MSS spectrum to Satellite Communication Network (SCN) authorised entities** should be **anchored in TRAI’s recommendations dated 09.05.2025**, read with TRAI’s response dated 08.12.2025 to DoT’s back-reference dated 12.11.2025, **with appropriate and necessary modifications** to reflect:

- The **network-only nature of SCN authorisation** under Section 3(1)(b) of the Telecommunications Act, 2023;
- The **distinction between GSO- and NGSO-based architectures**; and
- The increasing role of **shared, multi-tenant satellite networks**, particularly for N-GSO systems.

NGSO-based FSS and GSO/ NGSO-based MSS:

Yes — but only with clearly defined, service-specific modifications should be incorporated into this. TRAI’s May 2025 recommendations were framed service-wise (NGSO-based FSS and GSO/NGSO-based MSS) and technology-neutral, not licence specific. TRAI explicitly anchored its advice in:

- Section 4 and First Schedule of the Telecommunications Act, 2023, which delinks spectrum assignment from legacy licence constructs; and
- Administrative assignment of satellite spectrum, subject to operational and regulatory safeguards, rather than auction.

Therefore, TRAI’s recommendations should apply to SCN-authorised entities, with targeted adaptations reflecting the structural differences between legacy licences and SCN authorisations.

NGSO-based FSS:

Although TRAI's May-2025 recommendations formally cover:

- NGSO-based FSS, and
- GSO/NGSO-based MSS,

TRAI was explicitly directed by DoT to “take into account services provided by GSO-based satellite communication service providers” while framing the framework for NGSO-FSS.

Further, in its 08.12.2025 response, TRAI reiterated that:

- spectrum assignment principles must be service-centric and technology-neutral, and
- administrative assignment must accommodate differences in orbital characteristics, not licence categories.

Given that:

- SCN authorisation under the Telecommunications Act, 2023 is the standard authorisation for satellite networks;
- GSO-based FSS delivers the same downstream service outcome (data & broadband) as NGSO-FSS but with materially different technical attributes

Overall Conclusion

TRAI's 09.05.2025 spectrum assignment framework should serve as the base framework for SCN-authorized entities;

This framework should be applied to NGSO-based FSS and GSO/NGSO-based MSS with modifications reflecting SCN's network-only and wholesale role;

GSO-based FSS should be governed by analogous terms, with limited service-specific adjustments;

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.

Nelco Response:

The eligibility conditions for administrative assignment of spectrum in frequency bands allocated for Fixed Satellite Service (GSO-FSS and NGSO-FSS) including S-band and L-band for ESIM services and/or S-band & L-band for PLMN services (Mobile Satellite Service -MSS) should be

objective, transparent, and proportionate and of the internationally harmonized nature of satellite spectrum management.

In the context of the question, there are two broad services along with associated frequency bands:

1. FSS-GSO (including ESIM);
 - a. Spectrum bands: S-band, L-Band, India C-band, Ku, Ka, Q, V)
2. FSS-NGSO (including ESIM) -
 - a. Spectrum bands: Ku, Ka, Q, V bands
3. D2C (D2D) Services using NGSO
 - a. Spectrum bands: S-band, L-band & IMT spectrum

FSS-GSO spectrum should be allocated as defined in Schedule-I of Telecommunication Act 2023 and right-to-use to be allocated to VSAT service licensee.

- VSAT service licensee
- Having agreement with Space segment provider for the satellite capacity which has been authorized by IN-SPACe
- Compliance to India's National Frequency Allocation Plan (NFAP)

FSS-GSO spectrum should be assigned to VSAT service licensee and should not be assigned to Satellite Communication Network (SCN) authorized entity.

FSS-NGSO spectrum should be allocated as defined in Schedule-I of Telecommunication Act 2023 and right-to-use should be allocated to proposed Satellite Communication Network (SCN) authorized entity having following eligibility conditions:

- Valid SCN authorization
- Non-Geostationary Satellite Operator (NGSO) or Partnership agreement with NGSO
- IN-SPACe authorisation for the NGSO capacity (to NGSO or its authorised Indian partner)
- Compliance to India's National Frequency Allocation Plan (NFAP),

For D2C (D2D) services, S-band or L-band spectrum should be assigned to

- Valid SCN authorization
- Non-Geostationary Satellite Operator (NGSO) or Partnership agreement with NGSO
- IN-SPACe authorization for the NGSO capacity (to NGSO or its authorized Indian partner)
- SCN or its NGSO partner should have valid ITU allocation for the same spectrum for which administrative assignment of MSS spectrum is sought. ITU allocation priority should be followed for all MSS D2D allocations
- Compliance to India's National Frequency Allocation Plan (NFAP)
- D2D services only to be based on standardized 3GPP protocols. Should support existing and future generations as a must.

- Strictly follow NFAP allocation plan and assignments (allocation) should be made in accordance with NFAP and ITU guidelines to eliminate interference to existing and future systems.
- Partnership with Indian entity for providing the MSS D2D services.

Justification:

- Satellite spectrum is internationally harmonized and coordination driven.
- Ensuring NFAP and ITU compliance prevents:
- Avoid coordination disputes,
- Avoid misalignment between domestic and global spectrum frameworks.

Such a framework ensures efficient spectrum utilisation, regulatory clarity, national security compliance, and timely deployment of satellite communication networks, while supporting the objectives of the proposed SCN authorisation.

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.

Nelco Response :In addition to the core eligibility and assignment principles, the Respondent submits that certain supplementary policy and regulatory considerations should be incorporated into the framework for assigning FSS and MSS spectrum to Satellite Communication Network (SCN) authorised entities. These measures will enhance regulatory clarity, ensure efficient utilisation of spectrum, and future-proof the SCN ecosystem, while remaining consistent with international satellite practices.

1. Long-Term Certainty and Stability of Spectrum Assignments

Suggestion:

- Spectrum assignments for FSS and MSS to SCN-authorized entities should be granted for long, predictable tenures aligned with satellite lifecycles;
- Renewable subject to continued compliance.

Justification:

Satellite systems involve substantial upfront capital expenditure and long deployment horizons.

Predictable spectrum tenure is essential for:

- Investment certainty and financing,
- Sustainable network planning,
- Alignment with satellite launch and replacement cycles.

Uncertainty or frequent reassessment of spectrum assignments could materially undermine satellite deployment viability.

2. Explicit Recognition of SCNaaS and Shared Use of Spectrum

Suggestion:

The assignment framework should explicitly recognise that:

- FSS and MSS spectrum held by SCN-authorized entities may be used to provide SCN-as-a-Service (SCNaaS) to multiple service-authorized entities;
- Shared and multi-tenant use of satellite spectrum is permissible, subject to compliance with coordination and interference norms.

Justification:

- Satellite networks are inherently capable of shared use. Formal recognition of SCNaaS and spectrum sharing:
- Improves spectrum efficiency,
- Reduces duplication of infrastructure,
- Supports a broader ecosystem of service providers (including VNOs and niche operators).

3. Evolution of use cases without requiring repeated regulatory amendments. ù

Justification: ù

MSS spectrum is particularly suited for mobile and low-power applications. Explicitly enabling ù such evolution: ù

- Avoids regulatory lag behind technology, ù
- Encourages innovation within existing service allocations, ù
- Ensures India remains aligned with global satellite and NTN developments. Coordination ù Mechanisms and Interference Management

Suggestion:

Assignment conditions should emphasize:

- Continued reliance on ITU coordination and notification procedures,
- Clear domestic processes for resolving interference issues

Justification:

Satellite spectrum management is inherently international. Over-prescription at the national level could create conflicts with ITU processes and delay deployment without materially improving interference outcomes.

5. Proportionate Compliance and Reporting Obligations

Suggestion: Û

Compliance and reporting requirements associated with FSS/MSS spectrum assignments should Û be: Û

- Proportionate to the network-only role of SCN entities;
- Distinct from retail service reporting obligations applicable to service-authorized entities.

Justification: Û

SCN-authorized entities do not interact directly with end users. Imposing retail-style reporting or Û usage obligations could result in duplication and inefficiency without meaningful regulatory benefit. Û

Conclusion

In addition to the primary spectrum assignment framework, the Respondent 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;
- Flexibility to support D2D and future satellite-mobile use cases;
- Alignment with ITU-led coordination and interference management;
- Proportionate compliance obligations reflecting SCN's network-only role; and
- A unified, non-fragmented approach to satellite spectrum assignment.

Incorporating these additional considerations will strengthen the SCN framework, ensure efficient spectrum utilisation, and create a regulatory environment conducive to innovation and sustained investment in India's satellite communication ecosystem

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?

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

Kindly provide a detailed response with justification.

Nelco Response : A light-touch, enabling policy and regulatory framework is desirable to permit an SCN-authorized entity to utilise FSS and/or MSS spectrum assigned to a service-authorized (“partnering”) entity for the purpose of providing Satellite Communication Network as a Service (SCNaas) to such partnering entity.

Given the diversity of satellite architectures, services, and partnership models envisaged under the SCN framework, overly prescriptive regulation is neither necessary nor desirable. Instead, a principles-based framework that enables commercially negotiated arrangements—while ensuring accountability, interference protection, and security compliance—would best serve policy objectives.

If the Authority decides to establish a policy and regulatory framework, it should be facilitative rather than restrictive, and include the following key principles:

1. Commercially Negotiated Agreements

SCN-authorized entities and partnering service-authorized entities should be permitted to enter into commercial agreements for use of FSS/MSS spectrum assigned to the partnering entity. Such agreements may cover:

- Scope and manner of spectrum utilisation,
- Performance metrics,

Justification:

Commercial flexibility is essential to accommodate varying service types (FSS, MSS, D2D), business models (wholesale, hybrid), and operational requirements.

2. Clear Allocation of Regulatory Responsibility

Spectrum rights and obligations should continue to vest with the spectrum-holding service-authorized entity.

Justification:

This ensures regulatory clarity and avoids ambiguity regarding compliance, enforcement, and accountability.

3. Interference Management and Coordination

Agreements should expressly provide for:

- Compliance with ITU Radio Regulations and NFAP,
- Coordination responsibilities between the parties,
- Mechanisms for interference detection, mitigation, and resolution.
- No additional national coordination requirements should be imposed beyond those already applicable to the spectrum-holding entity.

Justification:

Interference management is intrinsic to spectrum use and should remain aligned with established international and domestic processes.

4. Security and Lawful Interception

- Security, lawful interception, and monitoring obligations should be:

- Clearly allocated between the SCN-authorized entity and the partnering entity, ù
- Consistent with DoT security conditions applicable to satellite networks. ù
- The enabling framework should not dilute security or monitoring requirements. ù

Justification: ù

Satellite networks carry national-security implications; clarity in responsibility ensures ù enforceable compliance without duplication. ù

5. No Ex-Ante Approval or Registration of Agreements ù

Individual SCNaas agreements should not require prior regulatory approval or registration, ù provided they are consistent with applicable laws and licence conditions. ù

Justification: ù

Requiring approvals would add administrative burden, delay deployment, and undermine ù the objective of fast, flexible satellite network enablement. ù

Conclusion:

In summary, the Respondent recommends that:

- A light-touch, enabling policy framework may be adopted to permit SCN-authorized entities to utilise FSS/MSS spectrum assigned to partnering service-authorized entities for SCNaas;
- Such a framework should emphasise clear role allocation, interference protection, and security compliance;
- There should be no mandatory reference agreement, no price controls, and no ex-ante approval of contracts.

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 utilize the FSS spectrum and/ or MSS spectrum assigned to such partnering entities? Kindly provide a detailed response with justification.

Nelco Response :In addition to the enabling framework discussed earlier, the Respondent submits that certain supplementary safeguards and clarifications should guide agreements or arrangements between SCN-authorized entities and service-authorized (“partnering”) entities for utilisation of FSS and/or MSS spectrum assigned to the partnering entities. These measures will ensure regulatory clarity, operational efficiency, spectrum integrity, and legal certainty, while preserving commercial flexibility and innovation under the SCN framework.

1. Explicit Recognition of Multi-Tenant and Shared-Use ArrangementsSuggestion: Agreements should explicitly allow for multi-tenant and shared use of satellite networks and

spectrum, where technically feasible, subject to compliance with spectrum assignment conditions.

Justification:

Satellite networks are inherently suited for shared use. Explicit recognition of such models:

- Improves spectrum and network utilisation;
- Enables cost-effective service delivery;
- Supports participation by smaller service providers and VNOs without duplication of infrastructure.

2. Clear Demarcation of Liability and Regulatory Accountability

Suggestion:

Agreements should clearly specify:

- That spectrum-related rights and statutory obligations remain with the spectrum-holding partnering entity; and
- That the SCN-authorized entity is responsible for network-level operations strictly within the scope of the agreement.

Justification:

- Clear demarcation of liability.
- Prevents regulatory ambiguity.
- Facilitates enforcement by the regulator.
- Avoids disputes between parties in cases of interference, non-compliance, or service disruption.

4. Interoperability and Standards Compliance

Suggestion:

Agreements should require adherence to:

- Applicable ITU Radio Regulations;
- NFAP allocations;
- Relevant 3GPP / satellite standards, where applicable (especially for MSS and D2D use cases).

Justification:

- Standards-based operation:
- Ensures interoperability across networks;
- Minimises interference risks;
- Facilitates future scalability and cross-network integration.

5. Dispute Resolution and Exit Provisions

Suggestion:

Agreements should:

- Include clear dispute-resolution mechanisms (commercial, technical, and regulatory);
- Provide exit and transition provisions to protect continuity of service to end users.

Justification:

Given the wholesale nature of SCNaaS, disputes or termination of agreements should not result in abrupt service disruption or misuse of spectrum.

6. Non-Requirement of Regulatory Approval or Tariff Regulation

- i) Should not require ex-ante regulatory approval or filing;
- ii) Should not be subject to tariff regulation or price controls, except where already provided under law.

Justification:

- Commercial flexibility is central to the SCN model. Introducing approval or tariff controls would:
 - Increase administrative burden,
 - Delay service deployment,
 - Reduce incentives for investment and innovation.

Conclusion

In summary, Nelco recommends that agreements or arrangements between SCN-authorized entities and partnering service-authorized entities for utilisation of FSS and/or MSS spectrum should be guided by the following additional principles:

Explicit recognition of shared and multi-tenant satellite network use;

- Clear allocation of regulatory responsibility and liability;
- Standards-based and interoperable operations;
- Flexibility to support service evolution and technological upgrades;
- Robust dispute-resolution and exit mechanisms; and
- Absence of mandatory approvals or tariff regulation, with reliance on ex-post oversight.

Incorporating these considerations will enhance the effectiveness of the SCN framework, safeguard spectrum integrity, and promote a competitive, innovative, and investment-friendly satellite communications ecosystem in India.

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 a service? If yes, kindly suggest a broad framework for this purpose and the key terms and

conditions to be included under such a framework? Kindly provide a detailed response with justification.

Nelco Response: Yes, a clear and proportionate policy and regulatory framework is necessary for Direct-to-Device (D2D) services via satellite are to be permitted using MSS spectrum, particularly in L-band and S-band.

Such a framework should be enabling rather than restrictive, as MSS-based D2D represents a natural evolution, leveraging already harmonised spectrum and well-understood regulatory constructs. The framework should facilitate early deployment of D2D services while safeguarding national security, spectrum integrity, and regulatory accountability.

Rationale for Establishing a Dedicated Framework

1. MSS-Based D2D is a Use Case of MSS

While D2D builds on MSS allocations, it differs from traditional MSS in:

- Device density and scale,
- Potential integration with consumer electronics (smartphones, wearables), Service expectations (emergency alerts, messaging, resilience).

A specific framework ensures clarity on how these services are enabled and regulated without ambiguity.

2. Early, Low-Risk Enablement of D2D

Unlike IMT-based D2D, MSS spectrum:

- Is already internationally harmonised under ITU Radio Regulations;
- Is designed for low-power, wide-area cellular (D2D-Cellular) & IOT (D2D-IOT) use cases;
- Does not compete with auction-assigned terrestrial IMT spectrum.
- A dedicated framework allows India to reap early benefits of D2D without waiting for global decisions at WRC-2027.

3. Regulatory Certainty for All Stakeholders

A defined framework provides:

- Predictability for satellite operators investing in NGSO/GSO MSS systems;
- Confidence to service providers integrating D2D into offerings;
- Assurance to regulators that security and compliance obligations are preserved.

Suggested Broad Framework for MSS-Based D2D

The framework should be principles-based, layered on existing MSS regulations, and include the following elements:

1. Eligible Spectrum and Technology: D2D service in MSS band should be permitted only in ITU's MSS allocations, including L-band and S-band.

Use must be strictly in accordance with:

- ITU Radio Regulations;
- National Frequency Allocation Plan (NFAP);
- Services should follow globally accepted standards, including relevant 3GPP Non-Terrestrial Network (NTN) specifications, where applicable.

Justification:

This ensures interoperability, device ecosystem maturity, and interference-free operation, while avoiding conflicts with terrestrial services.

2. Eligible Authorised Entities

D2D using MSS spectrum should be provided through:

- SCN-authorized entities using MSS spectrum assigned to them; or
- SCN-authorized entities utilising MSS spectrum of a partnering service-authorized entity, under a valid commercial arrangement.

Justification:

This preserves the separation of network and service layers and aligns with the SCNaas concept.

4. Security, Lawful Interception, and Routing

All D2D traffic originating from or terminating in India must:

- Be routed through India-based satellite gateways, where mandated;
- Comply with applicable lawful interception and monitoring requirements;
- Responsibilities for compliance should be clearly allocated between:
- SCN-authorized entities (network-level obligations); and
- Service-authorized entities (service-level obligations).

Justification:

Strong security provisions maintain national-interest safeguards while enabling new services.

5. Interference Management and Coordination

MSS-based D2D services should:

- Operate strictly within assigned MSS spectrum limits
- Comply with applicable coordination procedures

Any interference issues should be addressed through

- ITU-aligned mechanisms
- Domestic dispute-resolution processes where necessary.

Justification: Û

MSS spectrum is globally coordinated; leveraging existing mechanisms avoids regulatory Û duplication. Û

6. Light-Touch Commercial and Regulatory Treatment

No tariff regulation or price control should apply;

- No ex-ante approval of D2D service offerings or agreements should be required;
- Regulatory oversight should be ex-post, triggered by non-compliance, interference, or security issues.

Justification:

A light-touch approach accelerates deployment and innovation while retaining regulatory control where it matters.

Conclusion:

In conclusion, the Nelco submits that:

- A dedicated, enabling regulatory framework is necessary for permitting D2D services via satellite using MSS spectrum (L-band and S-band);
- Such a framework should build upon existing MSS regulations, with targeted clarifications for D2D use cases.
- The framework should be proportionate, security-aligned, and internationally harmonised, enabling early deployment of D2D services.
- MSS-based D2D should be positioned as a complementary, public-interest and resilience-oriented service, avoiding disruption to terrestrial cellular networks and IOT data networks.
- Adopting this framework will allow India to lead in satellite-enabled D2D connectivity while maintaining regulatory discipline, spectrum integrity, and national security.

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, -

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?

Which frequency bands identified for IMT should be considered for this purpose? Specifically, whether only FDD-based frequency bands should be considered?

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).

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?

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:

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

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

Any other method?

Kindly provide a detailed response with justification.

Nelco Response:

Required modification should be done to include :

- i) For IMT bands which can be used for D2D Services, these specific bands should also have mention in NFAP as MSS spectrum, on secondary basis
- ii) For S-band L-band, there are more than 1 Lac+ of user terminals operational GSO satellites (S-band & L-band). These are currently allowed under FSS and are called ESIM (Earth Station in Motion). NFAP should also be modified to include mention of ESIM services alongside MSS services on a primary basis, for the relevant S-band and L-band frequencies.

if Direct-to-Device (D2D) service via satellite using International Mobile Telecommunications (IMT) spectrum is to be enabled, it should be done through a calibrated regulatory framework, under which:

- IMT spectrum continues to be held exclusively by Access Service Providers (ASPs);
- SCN-authorized entities act only as network enablers, providing satellite infrastructure through SCNaas;
- D2D via IMT is treated as an extension of terrestrial mobile networks, not as an independent satellite access service.

(a) Need for a Policy and Regulatory Framework, and Suggested Terms

- Need for a Framework
- Yes, a policy and regulatory framework is required, given that IMT spectrum:
- Is auction-assigned;
- Has defined service obligations;
- Is critical national infrastructure used for public mobile services.
- Unregulated or ad-hoc arrangements could compromise spectrum integrity, interference protection, and enforcement clarity.

Suggested Framework Principles

The framework should be enabling and light-touch, and include the following key terms and conditions:

1. Partnership-Only Model

IMT-based D2D should be permitted only through Access Service Providers holding the relevant IMT spectrum.

- SCN-authorized entities should be permitted to utilise such spectrum solely under commercial agreements with the partnering ASPs.

2. No Independent IMT Rights for SCN Entities

- SCN-authorized entities should not be assigned IMT spectrum directly.
- All spectrum rights, obligations, and liabilities must remain with the spectrum-holding ASP.

Agreements should define:

- Scope of satellite use of IMT spectrum; ù
- Technical parameters and operational controls; ù
- security responsibilities. ù

No reference agreement, tariff regulation, or ex-ante approval of contracts should be required.

4. Compliance Responsibility

ASPs remain responsible for:

- Compliance with IMT licence conditions,
- QoS, coverage, and consumer obligations.
- SCN entities remain responsible for:
 - Satellite network operations,
 - Compliance with agreed technical parameters and security obligations.

(b) IMT Frequency Bands to Be Considered

Recommended Approach

- Initial enablement should be limited to **FDD-based** IMT bands, particularly those:
 - Below 3 GHz (e.g., 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz);
 - Already widely supported by global device ecosystems.

Justification

FDD bands offer:

- Symmetric uplink and downlink characteristics,
- More predictable interference behaviour,
- Better compatibility with satellite NTN architectures.

TDD bands involve:

- Complex synchronisation,
- Higher interference risks,
- Cross-border coordination challenges.

TDD-based IMT bands may be evaluated at a later stage based on technical studies and international experience.

(c) NFAP Modifications

Position

NFAP modification should not be undertaken at this stage to include MSS on a secondary basis in IMT bands.

Justification

- IMT spectrum is primarily intended for terrestrial mobile services. ù
- MSS secondary allocation in IMT bands: ù
- Is under international consideration at WRC-2027; ù
- Requires global harmonisation before domestic adoption. ù
- Premature NFAP modification could: ù
- Create regulatory uncertainty, ù
- Complicate international coordination, ù
- Undermine long-term spectrum planning. ù

Suggested Path

- Continue operations, where permitted, under:
 - Existing IMT allocations;
 - Article 4.4 of the ITU Radio Regulations;
- Revisit NFAP modifications after WRC-2027, based on international outcomes.

(d) Cross-Border Interference Mitigation

- Article 4.4 of the ITU Radio Regulations is sufficient at this stage, provided it is complemented by domestic safeguards.
- Additional Domestic Conditions (if required)
- Geo-fencing and power-flux-density (PFD) limits at national borders;
- Coordination obligations on ASPs for border regions;
- Ability to modify or suspend D2D operations in specific areas if interference is detected.

Justification

- Cross-border interference in IMT bands has international implications
- Over-prescription at the domestic level may conflict with ITU processes
- A measured, adaptive approach is preferable.

(e) Regulatory Framework for Interference-Free Operation within India

Preferred Method

Option (ii) should be adopted:

- The SCNs established by SCN-authorized entities should be permitted to provide D2D services using IMT spectrum where one or more Access Service Providers, together holding the relevant IMT frequency channel across all 22 LSAs, agree to permit such usage.

Justification

Why Option (ii) is preferred wherein 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 authorized entity at its SCN for the purpose of providing SCNaas; or

- Reflects the actual structure of IMT spectrum holdings in India;
- Enables competition and collaboration without mandating a single nationwide holder;
- Provides nationwide spectrum continuity essential for satellite D2D operations.

Why Option (i) wherein is too Restrictive

- Requiring a single ASP to hold pan-India (all 22 circles) spectrum would:
- Unduly restrict participation,
- Delay adoption,
- Concentrate benefits unfairly.

Option (iii)

May be considered in future, but only after sufficient operational experience and international guidance.

Conclusion

In summary, the Respondent recommends that IMT-based D2D via satellite be enabled through a structured, partnership-based regulatory framework, characterised by:

- Exclusive IMT spectrum ownership by Access Service Providers;
- SCN entities acting strictly as satellite network enablers;
- Commercially negotiated SCNaas arrangements;
- Initial focus on FDD-based IMT bands;

- Reliance on Article 4.4 RR and domestic safeguards;
- Adoption of Option (ii) for nationwide spectrum continuity.

This approach balances innovation and early deployment with spectrum integrity, regulatory clarity, and national interest, while retaining flexibility to align with WRC-2027 outcomes.

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.

Nelco Response: In addition to spectrum-specific and framework-related measures, the Respondent submits that the successful delivery of Direct-to-Device (D2D) services via satellite through Satellite Communication Networks (SCNs) will require a set of operational, technical, consumer-protection, and governance-oriented safeguards. These measures are not intended to create additional regulatory burdens, but to ensure network integrity, user safety, service reliability, and smooth ecosystem coordination as D2D services scale in India.

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.

Nelco Response: In addition to the specific matters concerning eligibility, assignment, charging, and service enablement, the Respondent submits that certain cross-cutting principles and safeguards should guide the overall use of spectrum on SCNs established by the proposed SCN-authorized entities. These inputs are aimed at ensuring efficient spectrum utilisation, regulatory clarity, investment certainty, and long-term sustainability, while maintaining flexibility to accommodate evolving satellite technologies and use cases.

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.

Nelco 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 given the wholesale and enabling nature of SCNaas.

1. Rationale for Not Regulating Charges

- SCNaaS Is a Wholesale / Infrastructure Service
- SCNaaS is a network-layer service, not an end-user retail service.
- Charges may depend various combination of variables like type of Services (FSS/ESIM/D2D-IOT/D2D-Cellular etc), amount of capital invest in satellite infrastructure including Gateways in India, dynamic capacity allocations etc.

Justification:

Wholesale infrastructure services in telecom (e.g. backhaul, dark fibre, data centres) are not subject to tariff regulation, and a similar approach should apply to SCNaaS to ensure consistency and regulatory parity.

1.2 Diversity of Business Models and Use Cases

SCNaaS arrangements may vary significantly depending on:

- Whether FSS or MSS spectrum is used;
- Whether spectrum is held by the SCN entity or the Service entity;
- Nature of services (enterprise broadband, mobility, D2D, disaster recovery);
- Volume, geography, latency, and availability requirements.

Justification:

A standardised or regulated pricing model cannot adequately address this diversity and would risk:

- Distorting commercial negotiations,
- Reducing flexibility,
- Slowing adoption and innovation.

1.3 Avoidance of Entry Barriers and Investment Disincentives

Satellite networks require:

- High upfront capital investment;
- Long payback periods;
- Continuous technology evolution (NGSO launches, upgrades).

Justification:

Regulating SCNaaS charges could:

- Reduce investment incentives,
- Make new capacity rollout uneconomical,
- Conflict with the objective of rapid satellite ecosystem development.

2. Safeguards Instead of Price Regulation

While price regulation is not required, certain non-intrusive safeguards may be maintained to protect systemic interests.

2.1 SLA Parameters (Contractual, Not Regulated)

Where required by service-authorized entities, SLAs may include:

- Network availability and uptime;
- Latency and packet-loss benchmarks (where applicable);
- Fault reporting and restoration timelines;
- Capacity assurance and prioritisation mechanisms.

Justification:

SLA requirements are best set contractually, as they depend on service type and use case. Regulatory prescription of SLAs would be impractical and unnecessary.

Conclusion

In summary, the Respondent recommends that:

- There is no need to regulate charges exchanged between SCN-authorized entities and Service-authorized entities for SCNaaS;
- Charges should be determined through commercially negotiated agreements;
- SLAs, capacity allocation and performance benchmarks should remain contractual, not regulatory;
- 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.

Nelco Response : There is no need to regulate the charges exchanged between an SCN-Authorised Entity and a Service-Authorised Entity for provision of SCNaaS using MSS spectrum.

Pricing should remain market-driven, based on commercial negotiation, with only light-touch ex-post regulatory oversight to ensure compliance with licence obligations, spectrum conditions, and security requirements.

The rationale for not regulating the **charges exchanged between the two entities under such an agreement is similar to as responded to Q22 above.**

Conclusion

The Respondent therefore recommends that:

✗ No tariff or charge regulation should be imposed on SCNaaS agreements for MSS-based D2D services.

✓ Charges should be entirely commercially negotiated between the SCN-Authorised Entity and the Service-Authorised Entity.

✓ SLAs, spectrum-use rules, and operational parameters should be addressed contractually, not through regulatory price control.

✓ Ex-post, issue-based oversight is sufficient for ensuring compliance and preventing anti-competitive harm.

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.

Nelco Response :that there is no need to regulate the charges exchanged between an SCN Authorised Entity and a Service Authorised Entity for provision of Satellite Communication Network as a Service (SCNaaS) in the context of Direct-to-Device (D2D) services using IMT spectrum, irrespective of whether the arrangement also involves utilisation of feeder-link spectrum assigned to the Service Authorised Entity.

Charges under such agreements should remain commercially negotiated on bi-lateral basis with any need to regulate these charges.

The rationale for not regulating the **charges exchanged between the two entities under such an agreement is similar to as responded to Q22 above.**

Conclusion

In conclusion, the Respondent recommends that:

✗ There is no need to regulate charges exchanged between SCN Authorised Entities and Service Authorised Entities for SCNaaS in IMT-based D2D services.

✓ Charges should be determined through commercially negotiated agreements, reflecting service scope, capacity, and performance needs.

✓ SLA parameters, spectrum utilisation arrangements, and performance metrics should remain contractual, not regulatory.

✓ Regulatory oversight should be ex-post and issue-driven, focused on compliance, competition, and security concerns.

This approach is consistent with the wholesale nature of SCNaaS, protects the integrity of IMT spectrum licences, and enables timely and scalable deployment of IMT-based D2D services in India.

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.

Nelco Response :Yes,The charges paid by a Service-Authorised entity (providing FSS, MSS, or D2D services) to an SCN-Authorised entity for provisioning of Satellite Communication Network as a Service (SCNaaS) should be permitted to be deducted from the Adjusted Pass-through Gross Revenue (ApGR) of the Service-Authorised entity for the purpose of arriving at AGR for levy of licence/authorisation fees and spectrum charges.

1. Rationale for Permitting Deduction from ApGR

- SCNaaS Charges Are Pure Pass-Through Network Costs
- SCNaaS charges represent wholesale, infrastructure-layer costs incurred by a Service-Authorised entity to access satellite network capacity.

These charges are not end-user revenues, nor do they reflect value creation at the service layer.

The SCN-Authorised entity is separately subject to licence/authorisation fees and applicable levies on its own revenues.

Justification:

Disallowing deduction would result in double counting of the same economic value—once in the hands of the Service-Authorised entity and again when earned by the SCN-Authorised entity—contrary to sound revenue-accounting principles.

1.2 Consistency with the Concept of ApGR and Pass-Through Deductions

ApGR was explicitly conceptualised to exclude genuine pass-through charges that do not constitute retained revenue.

SCNaaS charges are analogous to:

- Bandwidth carriage,
- Network access and backhaul,
- Infrastructure-sharing charges, which have consistently been treated as deductible pass-through costs where permitted.

Justification:

Treating SCNaaS charges as non-deductible would be inconsistent with the purpose of ApGR and would artificially inflate AGR for Service-Authorised entities.

1.3 Structural Separation Between Network and Service Layers

The SCN framework is premised on clear separation between network authorisation (Section 3(1)(b)) and service authorisation (Section 3(1)(a)) under the Telecommunications Act, 2023.

SCN-Authorised entities function as network enablers, while Service-Authorised entities alone interface with end users.

Justification:

Failing to allow deduction of SCNaaS charges would undermine this separation and effectively tax the same network function twice—once at the network layer and again at the service layer.

1.4 Avoidance of Economic Distortion and Investment Disincentives

Non-deductibility would:

- Increase the effective AGR base of Service-Authorised entities,
- Raise licence and spectrum fee outgo,
- Artificially increase the cost of satellite-based services.

This would particularly affect:

- Satellite Communication services delivered using SCN,
- Rural and remote connectivity,
- Emergency and resilience applications.

Justification:

Such distortion would frustrate public-interest objectives and deter adoption of SCNaaS-based service models.

2. Safeguards to Ensure Correct Application of Deduction

To prevent misuse or revenue leakage, the following safeguards may apply:

- Bona Fide SCNaaS Charges Only: Deduction should be limited strictly to charges paid under valid SCNaaS agreements with SCN-Authorised entities.
- Arm's-Length and Documented Arrangements

SCNaaS agreements should be:

- Commercially negotiated,
- Properly documented,
- Available for audit, if required.

3. Applicability Across Service Types (FSS, MSS, D2D)

The deductibility principle should apply uniformly where a Service-Authorised entity uses SCNaaS to deliver:

- FSS-GSO
- FSS-NGSO
- MSS-ESIM-GSO
- MSS-ESIM-NGSO
- MSS-D2D-IOT
- MSS-D2D-Cellular

Justification:

The underlying economic nature of SCNaaS charges remains identical irrespective of the service type—they are wholesale network costs and not end-user revenues.

Conclusion

In conclusion, the Respondent recommends that:

✓ SCNaaS charges paid by a Service-Authorised entity be permitted as deductible pass-through charges from ApGR for AGR determination;

✓ This treatment is necessary to:

Avoid double counting of revenue,

Preserve the network–service separation under the SCN framework,

Ensure consistency with ApGR principles, and

Promote sustainable deployment of satellite-enabled services;

✓ Adequate safeguards can be ensured through documentation and audit, without denying deductibility.

Permitting such deductions is essential for a coherent, equitable, and investment-friendly implementation of the SCN framework and the broader objectives of the Telecommunications Act, 2023.

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.

Nelco Response: SCNaaS charges should be deductible from ApGR of the Service-Authorised entity, the Respondent submits the following alternative methodology to be adopted only in the event that such deduction is not permitted, so as to avoid double counting of revenues, economic distortion, and inadvertent over-recovery of licence and spectrum charges.

Core Principle for Alternative Methodology

If SCNaaS charges are not deductible at the Service-Authorised entity level, then the regulatory framework must ensure that the same revenue value is brought into AGR computation at only one level in the value chain—either at the service layer or at the network layer, but not both

Proposed Two-Step Methodology

Step 1: Treatment at the Service-Authorised Entity Level

The gross end-user revenue earned by the Service-Authorised entity from provisioning FSS, ESIM, MSS including D2D services may be included initially in its GR.

However, the portion of such revenue representing SCNaaS charges remitted to the SCN-Authorised entity should be identified as a pass-through network cost.

If deduction from ApGR is not permitted, then:

The Service-Authorised entity's AGR should be computed by excluding the SCNaaS charge component from the AGR base for the purpose of levy of licence/authorisation fees and spectrum charges, through an explicit adjustment mechanism.

This could be achieved by:

- Allowing an equivalent offset or adjustment in the AGR computation, or
- Increasing the AGR base of the SCN-Authorised entity correspondingly (see Step 2).

Step 2: Treatment at the SCN-Authorised Entity Level

SCNaaS charges received by the SCN-Authorised entity from Service-Authorised entities should be treated as:

- Core operating revenue of the SCN-Authorised entity, and
- Fully included in its GR, AGR, and ApGR, as applicable.
- Licence/authorisation fees and spectrum charges (where applicable) should then be levied only once, at the SCN-Authorised entity level, on such SCNaaS revenues.

This ensures:

- The same economic value is taxed only once;
- Network-layer revenues are appropriately captured at the network level;
- Retail-layer revenues remain taxed at the service level.

Safeguards and Conditions

To ensure transparency and prevent abuse, the following safeguards may apply:

1. Clear Segregation of Revenue Streams

Service-Authorised entities should maintain accounting separation between:

- End-user service revenue, and
- SCNaaS charges payable to SCN-Authorised entities.

2. Arm's-Length Documentation

SCNaaS agreements should be:

- Commercially negotiated,
- Documented,
- Available for audit and verification by licensor.

3. Ex-Post Audit and Validation

- Regulatory oversight should be ex-post, focusing on:
- Correct attribution of revenue,
- Prevention of artificial inflation or suppression of AGR.

Why This Methodology Is Necessary

If neither deduction nor offset is allowed, the same SCNaas value would be included in AGR of the Service-Authorised entity

Again be included in AGR of the SCN-Authorised entity;

This would result in:

Double levy of licence and/or spectrum charges;

- Artificial inflation of AGR bases;
- Distortion of investment incentives for satellite networks;
- Higher downstream costs for satellite-enabled services.

Conclusion

In conclusion, if deduction of SCNaas charges from ApGR is not permitted, the Respondent recommends adoption of a single-taxation, single-point revenue attribution methodology, whereby:

SCNaas revenues are effectively taxed only at the SCN-Authorised entity level; and

The Service-Authorised entity's AGR base is adjusted to exclude or offset the SCNaas component.

This approach:

- Preserves the economic neutrality of the SCN framework,
- Avoids double counting and over-recovery,
- Maintains consistency with the network-service separation under the Telecommunications Act, 2023, and
- Ensures regulatory fairness and sustainability of satellite-enabled services.

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.

Nelco Response :The definitions of Gross Revenue (GR), Adjusted Gross Revenue (AGR), and Adjusted Pass-through Gross Revenue (ApGR) for Satellite Communication Network

(SCN) Authorisation must be clearly differentiated from retail service authorisations, keeping in view that:

SCN Authorisation under Section 3(1)(b) of the Telecommunications Act, 2023 is a network-layer authorisation;

SCN-Authorised entities do not provide end-user services; and

SCN revenues are wholesale, infrastructure-level revenues, primarily earned through Satellite Communication Network as a Service (SCNaaS).

Consequently, the revenue definitions must:

- Avoid double counting of the same economic value,
- Recognise pass-through and cost-recovery components, and
- Be simple, transparent and auditable.

2. Definition of Gross Revenue (GR) for SCN Authorised Entities

Proposed Definition

“Gross Revenue (GR)” for an SCN Authorised entity shall mean the total revenue earned from provisioning Satellite Communication Network infrastructure and network-related services, on a gross basis, before exclusions and deductions.

Revenue Items to be Included in GR (Illustrative List)

Operational Revenues

- SCNaaS fees charged to Service-Authorised entities (FSS, MSS, D2D service providers);
- Network access, capacity leasing, or bandwidth provisioning charges;
- Charges for shared use of satellite gateways, teleport facilities, and ground segment infrastructure;
- Fees for network management, monitoring, and operational support services directly related to SCN.

Other Operating Revenues (if directly linked to SCN)

- Revenue from provision of redundancy, backup, or resilience services using the SCN;
- Charges for enabling hybrid satellite–terrestrial interconnection functionality.

3. Exclusions from GR (Non-Operational / Non-SCN Revenues)

The following revenue elements should not form part of GR, as they do not reflect telecom network provisioning:

✗ Pure Pass-Through Recoveries

Statutory levies collected on behalf of Government;

Reimbursements of third-party costs without margin (e.g. electricity, site rentals where fully reimbursed).

✗ Non-Telecom / Non-SCN Revenues

Interest income;

Dividend income;

Gain on sale of assets;

Foreign exchange gains (unless linked directly to SCN operations);

Insurance claims and damages;

Any income unrelated to satellite network provisioning.

4. Definition of Adjusted Gross Revenue (AGR) for SCN Authorised Entities

Proposed Definition

“Adjusted Gross Revenue (AGR)” for an SCN Authorised entity shall mean Gross Revenue from SCN operations after exclusion of non-telecom and non-operational revenues, consistent with the principles applicable to telecom network authorisations.”

Exclusions/Deductions to Arrive at AGR

AGR should be computed by deducting from GR:

- Non-telecom income identified above;
- Pure pass-through recoveries (no margin element);
- Bad debts written off, where directly attributable to SCNaas revenue.

✓ Important Clarification

AGR should not include retail end-user revenues, as SCN entities are not permitted to provide retail services.

5. Definition of Adjusted Pass-through Gross Revenue (ApGR)

Proposed Definition

“Adjusted Pass-through Gross Revenue (ApGR)” for an SCN Authorised entity shall mean AGR after excluding bona-fide pass-through charges paid to third parties or Service-Authorised entities, where such amounts do not constitute retained revenue of the SCN entity.”

Permissible Deductions from AGR to Arrive at ApGR

Pass-Through Cost Deductions

Satellite space-segment lease costs paid to upstream satellite operators;

Gateway, teleport, or earth station charges paid to third parties without mark-up;

Spectrum usage charges or regulatory fees paid to Government on a pass-through basis;

Network usage charges paid to Service-Authorised entities (where applicable).

Conditions

Deductions should be:

- Contractual,
- At arm’s length,
- Supported by documentary evidence,
- Subject to audit.

6. Operational and Non-Operational Revenue Elements Specific to SCN

- Operational Revenues (Included in GR/AGR)
- SCNaas provisioning charges;
- Managed network operations linked directly to SCN;
- Infrastructure sharing income related to satellite network elements.
- Non-Operational Revenues (Excluded from GR/AGR)
- Treasury and investment income;
- Capital gains;
- One-time extraordinary income unrelated to SCN;
- Penalties or liquidated damages recovered.

7. Avoidance of Double Counting Across Value Chain

A critical principle for SCN revenue definitions is single-point taxation of value creation:

SCNaaS charges should be:

- Included in AGR of the SCN Authorised entity, and
- Either deducted from ApGR of the Service-Authorised entity or otherwise excluded to prevent double levy.

The same revenue stream should never be subjected to licence or spectrum charges twice at both network and service layers.

Conclusion

Nelco recommends that TRAI adopt distinct, SCN-specific definitions of GR, AGR and ApGR that:

- Reflect the network-only role of SCN Authorised entities;
- Recognise wholesale SCNaaS revenue as the core taxable base;
- Exclude non-telecom and non-operational income;
- Permit deduction of bona-fide pass-through costs; and
- Prevent double counting of revenue across the network–service value chain.

Such a framework will ensure regulatory clarity, accounting transparency, and investment sustainability, while remaining fully consistent with the objectives of the Telecommunications Act, 2023 and the proposed SCN authorisation regime.

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?

Nelco Response :Broad Financial Terms & Conditions for Assignment of FSS/MSS spectrum to SCN-Authorised Entities

1. Guiding Policy Principles

The financial terms and conditions for assignment of FSS and/or MSS spectrum to Satellite Communication Network (SCN) authorised entities should be guided by the following foundational principles:

- Recognition of SCN as a network-only, wholesale authorisation under Section 3(1)(b) of the Telecommunications Act, 2023;
- Alignment with international satellite spectrum practices and ITU-based administrative assignment;
- Avoidance of double levy, cost distortion, or cross-subsidisation across network and service layers;
- Promotion of long-term investment, efficient spectrum utilisation, and affordability of satellite-enabled services.

2. Mode of Spectrum Assignment

- Administrative Assignment
- FSS and MSS spectrum assigned to SCN-authorized entities should be through administrative assignment, not auction.

This is consistent with:

- Global satellite spectrum management practices,
- ITU Radio Regulations,
- The capital-intensive and long-cycle nature of satellite infrastructure.

Justification:

Auction-based pricing would be unsuitable for satellite networks, which rely on shared, internationally coordinated spectrum and require predictable, long-term regulatory certainty.

3. Spectrum Charges – Overall Approach

- Revenue-Linked, Proportionate Charging
- Predictable and proportionate,
- Aligned with the network-enablement role of SCN entities,
- Structured to recover administrative and regulatory costs rather than maximise tax/regulatory revenue.

Justification:

SCN entities do not generate retail revenues; excessive spectrum charges would be passed downstream, increasing costs of satellite services and undermining public-interest objectives.

4. Basis of Spectrum Charges

Spectrum charges for SCN-assigned FSS/MSS spectrum should be linked to Adjusted Gross Revenue (AGR) of the SCN-authorized entity, derived solely from:

- SCNaaS revenues,
- Other network-level operational revenues.

Justification:

These approaches ensure transparency, auditability and predictability without burdening early-stage deployments or low-traffic networks.

5. Exclusions and Safeguards

Exclusions from Spectrum Charge Basis

- Pass-through costs (e.g., satellite space-segment leasing);
- Revenues already subject to licence or spectrum fees at the service-provider level;
- Non-operational income.
- Avoidance of Double Levy where the same spectrum or capacity is used indirectly by service-authorized entities,
- Or integrated into hybrid/partnered deployments, safeguards must ensure no double spectrum charging across SCN and service layers.

6. Tenure and Payment Terms

Spectrum assignment tenure should:

- Be aligned with the validity of SCN authorisation,
- Reflect satellite lifecycle considerations (typically 15–20 years),
- Be renewable subject to compliance.

Payment Terms

- Annual or quarterly payments;
- No large upfront lump-sum obligations;
- Annual reconciliation where AGR-linked charging applies.

Justification:

Front-loaded charges are incompatible with the capital structure and cash-flow profile of satellite systems.

7. Treatment of Shared and Multi-Tenant Use

Financial terms should explicitly permit:

- Multi-tenant and shared use of assigned FSS/MSS spectrum,
- Provision of SCNaaS to multiple service-authorized entities using the same spectrum.

- Spectrum charges should be levied once at the SCN entity level, regardless of the number of downstream service providers.

Justification:

This encourages efficient spectrum pooling and prevents artificial cost escalation due to service-provider multiplicity.

8. Review and Adjustment Mechanism

TRAI/DoT may provide for:

- Periodic review of spectrum charges (e.g., every 5 years),
- Adjustments based on market maturity, technology evolution, and international benchmarks,
- Without retrospective application.

Justification:

Periodic review preserves regulatory flexibility while maintaining investment certainty.

Summary of Recommended Financial Terms

Conclusion:

The Respondent recommends that the financial terms and conditions for assignment of FSS/MSS spectrum to SCN-authorized entities should be administrative, proportionate, predictable and investment-friendly, reflecting SCN's role as a network-enablement layer rather than a retail service provider.

Such a framework:

- Ensures efficient use of scarce satellite spectrum,
- Prevents double counting or excessive levies,
- Supports D2D, resilience and rural connectivity objectives, and
- Provides long-term certainty for capital-intensive satellite infrastructure deployment.

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.**

Nelco Response: The spectrum charging framework recommended by TRAI on 09.05.2025 for Satellite-based Commercial Communication Services should broadly apply to SCN-authorized entities, but with specific and material modifications to account for:

- The network-only, wholesale role of SCN authorisation under Section 3(1)(b) of the Telecommunications Act, 2023;
- The absence of direct retail revenues at the SCN layer.
- The need to avoid double levy across network and service layers; and
- The objective of enabling shared, multi-tenant satellite infrastructure.

Accordingly, the 09.05.2025 framework should serve as a baseline, not be applied verbatim.

1. Applicability of TRAI's Recommendations Dated 09.05.2025

Yes, the framework should be applicable in principle, but with SCN-specific adaptations.

Justification

TRAI's 09.05.2025 recommendations already establish sound foundational principles, including:

- Administrative assignment of satellite spectrum;
- Revenue-linked charging mechanisms (AGR-based);
- Alignment with ITU and international satellite practice;
- Avoidance of auction-based pricing.

These principles remain valid. However, direct application without modification would be misaligned with the SCN construct, which differs fundamentally from service authorisations that interface with end users.

2. Key Modifications Required for SCN-Authorised Entities

- Charging Base Must Be SCN-Specific
- Spectrum charges should be based only on the AGR of the SCN-authorized entity, derived from SCNaas revenues, and Other network-level operational income (if any).
- Retail end-user revenues must be excluded, as SCN entities are prohibited from providing retail services.

Rationale:

Charging spectrum fees on downstream service revenues would amount to indirect taxation of services not provided by the SCN entity.

2.2 Lower, Proportionate Spectrum Charge Rates

The applicable spectrum charge percentage should be lower than that applied to service-authorized entities under the 09.05.2025 framework.

This reflects:

- The wholesale nature of SCNaas,
- Lower margins at the network layer,
- High capital intensity and long payback periods of satellite infrastructure.

Rationale:

Applying retail-oriented charge rates to a network-only entity would distort economics and discourage infrastructure investment.

2.3 Explicit Exclusion of Pass-Through Components

From the SCN entity's AGR for spectrum-charge computation, the following should be excluded:

- Satellite space-segment lease charges;
- Gateway/teleport usage fees paid to third parties;
- Spectrum usage charges or regulatory fees paid on a pass-through basis;
- Any charges already subjected to licence or spectrum levies at another layer.

Rationale:

This ensures single-point levy and prevents cascading charges.

3. Recommended Spectrum Charging Framework for SCN Entities

Spectrum charges levied as a percentage of SCN-specific AGR, subject to:

- Defined exclusions,
- Audit-based verification,
- Annual reconciliation.

4. No Upfront or Auction-Equivalent Charges

- No upfront spectrum acquisition fees should be levied.

- No auction-linked or scarcity-premium pricing should apply.

Rationale:

Satellite spectrum is internationally coordinated, shared, and non-exclusive in the terrestrial sense; auction economics are not suitable.

5. Treatment of Multi-Tenant and Shared Spectrum Use

- Where FSS/MSS spectrum assigned to an SCN entity is used to provide SCNaas to multiple service-authorized entities, spectrum charges should:
 - Be levied once at the SCN entity level,
 - Not be multiplied based on the number of downstream service providers.

Rationale:

Charging per downstream user would penalise efficient spectrum sharing and defeat the purpose of SCN.

6. Periodic Review with Regulatory Certainty

Spectrum charge levels and structure may be reviewed periodically (e.g., every 5 years),

Any revision should be:

- Prospective only,
- Based on market maturity and international benchmarks,
- Not retrospective in application.

Conclusion:

Nelco recommends that while TRAI's 09.05.2025 spectrum charging framework should form the foundation, it must be adapted for SCN-authorized entities to reflect their network-only, wholesale role.

A modified AGR-linked or fixed, proportionate spectrum-charging framework—with clear exclusions, avoidance of double levy, and long-term predictability—will:

- Enable sustainable investment in satellite infrastructure,
- Support D2D, resilience and rural connectivity objectives,
- Ensure regulatory fairness and coherence, and
- Remain fully aligned with international best practices.

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.

Nelco Response : Yes. If spectrum charges are to be levied on the basis of AGR of the SCN-Authorised entity, it is essential that specific operational and non-operational revenue items be expressly excluded from the AGR base used for determining spectrum charges.

Such exclusions are necessary to:

- Prevent double counting and cascading levies,
- Reflect the network-only, wholesale nature of SCN Authorisation, and
- Ensure that spectrum charges are levied only on true value addition at the SCN layer.

1. Categories of Revenue That Should Be Excluded from AGR for Spectrum Charge Computation

A. Pass-Through Operational Revenues (Mandatory Exclusion)

The following operational revenue components should be excluded from AGR for the limited purpose of spectrum-charge determination, even if they are reflected in gross billing:

- Satellite space-segment lease charges paid to upstream satellite operators (GSO/NGSO), where recovered on a pass-through basis;
- Gateway / teleport usage charges paid to third-party teleport or earth-station operators without mark-up;
- Network access charges paid to other telecom or satellite networks for transit or interconnection;
- Spectrum usage charges, regulatory fees or statutory levies recovered from service providers on a pure pass-through basis.

Justification:

These costs do not represent retained revenue or economic value creation by the SCN entity. Levying spectrum charges on such amounts would result in taxing costs rather than value, and in many cases double levy, since the same amounts may already attract charges at another layer.

B. Revenues Already Subject to Licence / Spectrum Levy Elsewhere

The following revenues should also be excluded:

- SCNaas charges that are:

- Deducted or adjusted at the Service-Authorised entity level as pass-through expenditure; or
- Otherwise explicitly excluded from the Service-Authorised entity's AGR to prevent double counting.

Justification:

The AGR and spectrum-charge framework must ensure that the same economic transaction is subjected to licence or spectrum levy only once across the network-service value chain.

C. Non-Operational and Non-Telecom Revenues

The following non-operational income items should be excluded entirely from AGR for spectrum-charge purposes:

- Interest income and treasury income;
- Dividend income;
- Capital gains from sale of assets;
- Foreign exchange gains (unless directly linked to SCN service provisioning);
- Insurance claims, damages, penalties recovered;
- Any extraordinary or incidental income not arising from SCN operations.

Justification:

Such income streams are unrelated to spectrum use or telecom network provisioning, and their inclusion would artificially inflate AGR with no nexus to spectrum utilisation.

2. Revenue That Should Remain in AGR for Spectrum Charges

After exclusions, only the following revenues should form the base for spectrum-charge computation:

- ✓ Net SCNaas revenue retained by the SCN-Authorised entity, including:
 - Network provisioning fees,
 - Infrastructure / capacity charges,
 - Managed network operation fees,
 - Margins earned by the SCN entity after deducting pass-through costs.

Justification:

This represents the true economic value derived from use of spectrum by the SCN entity, and is therefore the appropriate basis for levying spectrum charges.

3. Accounting and Audit Safeguards

To ensure transparency and prevent misuse SCN-Authorised entities should maintain clear segregation between Pass-through costs and Retained revenue.

Exclusions should be:

- Contractually evidenced,
- At arm's length,
- Subject to audit and regulatory verification on an ex-post basis.
- No additional pre-approval or regulatory filing should be required.

4. Illustrative Treatment for AGR Used in Spectrum Charge Computation

5. Why Such Exclusions Are Essential

Without these exclusions:

- Spectrum charges would be levied on gross reimbursements and cost recoveries;
- Effective spectrum levy would become artificially inflated;
- SCN entities would bear disproportionate financial burden relative to value creation;
- Downstream satellite-enabled services (including D2D, rural connectivity, emergency services) would become economically unviable.

Conclusion

Nelco strongly recommends that, where spectrum charges are levied on the basis of AGR of SCN-Authorised entities:

- ✓ Pass-through operational revenues,
- ✓ Revenues already subjected to levy elsewhere, and
- ✓ Non-telecom / non-operational income

be explicitly excluded from AGR for the limited purpose of spectrum-charge computation.

This approach:

- Ensures single-point levy of spectrum charges,
- Aligns with the network-only nature of SCN Authorisation,
- Preserves regulatory fairness and accounting clarity.
- Supports sustainable investment in satellite communication networks.

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.

Nelco response:

No Response

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.

Nelco Response : Considering MSS frequency bands such as L & S band allocated on administrative basis, then the spectrum charges should be percentage of AGR in line with TRAI's recommendations dated 09.05.2025 applicable for Satellite based commercial communications services.

Justification

MSS spectrum is another satellite spectrum which is used for delivering satellite services.

As the charging mechanism for other satellite services (like FSS) is based on percentage of AGR, same methodology should be extended for frequency bands used for MSS.

The precedence is already there of charging MSS - One of the service providers, who is allocated MSS spectrum and is providing MSS services currently, is charged at percentage of AGR.

MSS being satellite-based services, it complements the terrestrial services to bridge the gap. The cost of satellite bandwidth services are `x` times of terrestrial services and thus not a competition to terrestrial services at all.

Spectrum usage charges as parentage of AGR, is best method as it is :

- Revenue-Linked, Proportionate Charging
- Predictable and proportionate,
- Reflect the share of the bandwidth actually utilized & revenue generated, in delivering MSS services
- Aligned with the network-enablement role of SCN entities,
- Structured to recover administrative and regulatory costs rather than maximize tax/regulatory revenue.

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.

Nelco submits that no additional spectrum charges should be levied on the Service Authorised entity for use of its assigned IMT spectrum in provision of satellite-based D2D services.

Justification

- IMT Spectrum is Already Fully Paid-For
- IMT spectrum has been auctioned,
- Assigned with defined usage rights,
- Subject to existing spectrum usage charges and licence fees.
- D2D Is an Extension of IMT Services
- IMT-based D2D should be treated as:
 - An extension of terrestrial mobile services,
 - Not a new or distinct spectrum use case.
- Satellite enablement does not create new spectrum rights.
- Avoidance of Double Levy
- Additional spectrum charges would result in:
 - Double payment for the same IMT spectrum,
 - Artificial cost escalation,
 - Slower innovation and deployment.
- SCN Entities Do Not Hold IMT Spectrum
- SCN Authorised entities merely enable network access;

Spectrum ownership and responsibility remain entirely with the Access Service Provider.

Nelco recommends that:

- No additional or incremental spectrum charges be levied on Service Authorised entities for satellite-based D2D using IMT spectrum.
- Existing IMT licence and spectrum fee obligations should be deemed sufficient.

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.**

Nelco Response: The payment terms for spectrum charges applicable to SCN Authorised entities should be simple, predictable, non-front-loaded, and aligned with the long-term investment profile of satellite infrastructure.

Recommended Payment Terms

- Spectrum charges should be payable On an annual basis, or Quarterly instalments with annual reconciliation
- No lump-sum or one-time upfront spectrum payment should be mandated.
- Alignment with Cash-Flow Profile

Satellite systems involve:

- High upfront capital expenditure,
- Long gestation and ramp-up periods,
- Revenue build-up over several years.

Payment timelines should reflect this reality and avoid early-stage financial strain.

Grace Period for Initial Years (Where Applicable)

For newly authorised SCN entities or new satellite systems, the Authority may consider:

- A short initial grace period,
- Or reduced spectrum-charge incidence during the early rollout phase.
- Any revision to spectrum charges should Be applied prospectively,
- Should be communicated well in advance & should Not have retrospective financial impact.

Justification

- Predictable, staggered payment terms are essential to:
- Support sustained investment in satellite infrastructure,
- Avoid cash-flow shocks,
- Enable orderly deployment of SCN-based services, including D2D.

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.

Nelco Response : If the Authority decides to prescribe Minimum Spectrum Charges, such charges should be modest, proportionate, and carefully calibrated to avoid creating entry barriers or discouraging efficient spectrum use.

Recommended Approach

Minimum Charges as a Floor, Not a Burden

- Minimum spectrum charges, if any, should function only as a nominal floor, applicable:
- Where AGR-linked spectrum significantly charges fall below a minimal level.
- They should not exceed a small percentage of expected baseline spectrum-use cost.
- Deferred or Reduced Application in Early Years
- Minimum spectrum charges should: Either be waived, or significantly reduced during the first few years of operation for new SCN entrants.
- Minimum charges should be payable:
- With scope for adjustment once actual AGR-based charges exceed the minimum. Minimum charges should not be linked to the number of satellites, Number of terminals or D2D devices, Number of downstream service providers.

Justification

- High or rigid minimum spectrum charges would:
- Penalise early-stage deployment,
- Undermine shared-use and multi-tenant SCN models,
- Be inconsistent with international satellite spectrum practice.

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.

Nelco Response : Nelco submits that minimum equity and net-worth requirements for SCN Authorised entities should be proportionate, realistic, and aligned with the capital-intensive nature of satellite networks, while avoiding exclusion of capable entrants.

The financial eligibility framework should balance the need for **financial credibility and long-term operational stability** with the objective of **avoiding unnecessary entry barriers** in a capital-intensive and long-gestation sector.

Q37 . What should be the minimum equity and minimum net worth requirements for a Satellite Communication Network (SCN) authorised entity?

Nelco Response: We submits that the **minimum equity and minimum net worth requirements** for a Satellite Communication Network (SCN) authorised entity should be **proportionate, realistic, and aligned with the network-only and wholesale nature of SCN authorisation** under Section 3(1)(b) of the Telecommunications Act, 2023.



The financial eligibility framework should balance the need for **financial credibility and long-term operational stability** with the objective of **avoiding unnecessary entry barriers** in a capital-intensive and long-gestation sector.

1. Guiding Principles

The determination of minimum equity and net worth for SCN entities should be guided by the following principles:

- SCN is a **network-layer authorisation**, not a retail service authorisation, and does not involve direct end-user servicing.
- Satellite communication networks involve **high upfront capital investments** and long amortisation cycles aligned with satellite lifecycles (15–20 years).
- SCN deployments are often undertaken through **subsidiaries, SPVs, or joint ventures** backed by large global satellite operators.
- Financial norms should ensure seriousness and resilience **without replicating retail-centric licence thresholds**.

2. Minimum Equity Requirement

Nelco recommends that the minimum equity requirement for an SCN authorised entity should:

- Be **moderate and commensurate with the scale of network infrastructure proposed**;
- Demonstrate commitment and capacity to deploy and operate satellite gateways and associated network elements; and
- Be **significantly lower than equity requirements applicable to Access Service or Unified Licensees**.

Justification:

SCN entities do not undertake retail obligations such as subscriber acquisition, billing, customer care, or consumer-level QoS. Imposing retail-level equity thresholds would therefore be disproportionate and may deter investment in shared satellite infrastructure.

3. Minimum Net Worth Requirement

Nelco recommends a **reasonable minimum net worth requirement** sufficient to demonstrate financial soundness and ability to sustain operations, while remaining aligned with the wholesale nature of SCN.

Justification:

Satellite network businesses typically incur significant capital expenditure well before

revenues stabilise. Excessively high net worth norms may exclude capable entities, delay infrastructure rollout, and reduce competition, thereby undermining policy objectives.

4. Recognition of Group-Level and Global Financial Backing

Financial capability assessment should explicitly permit consideration of:

- Parent or group-level net worth,
- Corporate guarantees from financially strong promoters, and/or
- Long-term contractual arrangements with IN-SPACe-authorized space-segment providers.

Justification:

Many SCN entities operate as Indian subsidiaries or SPVs with limited standalone balance sheets but strong global backing. Recognising group-level strength avoids duplication of financial filters across SCN authorisation, spectrum assignment, and space-sector approvals.

Conclusion

In summary, Nelco recommends that minimum equity and net worth requirements for SCN authorised entities be:

- Proportionate to the **network-only, wholesale role** of SCN;
- Sufficient to ensure financial credibility without creating entry barriers;
- Flexible enough to recognise **group-level and global backing**; and
- Supportive of timely deployment of satellite communication networks in India.

This calibrated approach will promote **investment, competition, and rapid satellite network rollout**, while maintaining regulatory robustness and financial discipline.

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

Nelco Response :The entry fee for the proposed Satellite Communication Network (SCN) authorisation should be nominal and administrative in nature, intended solely to recover the cost of processing and granting the authorisation, and not as a revenue-generating levy.

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

Nelco Response : We submits that the Authorisation Fee for a Satellite Communication Network (SCN) authorised entity should be levied at a low, proportionate rate as a



percentage of the SCN-specific Adjusted Gross Revenue (AGR), and should be significantly lower than the authorisation fee rates applicable to retail telecom service authorisations.

Detailed Justification

1. SCN Is a Network-Layer (Wholesale) Authorisation

SCN authorisation under Section 3(1)(b) of the Telecommunications Act, 2023 is explicitly designed as a network-only authorisation, under which:

SCN-authorized entities provide Satellite Communication Network as a Service (SCNaaS) to service-authorized entities;

SCN entities do not provide retail telecommunication services to end users;

No consumer pricing, billing, or mass-market revenue aggregation occurs at the SCN layer.

Implication: Authorisation fee rates designed for retail telecom service providers—who benefit from direct consumer revenues—are not appropriate for SCN entities.

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.

Nelco Response: We submits that a Minimum Authorisation Fee should preferably not be made applicable for the proposed Satellite Communication Network (SCN) Authorisation.

Given the nature of SCN as a network-layer, wholesale enablement authorisation, imposition of a fixed minimum authorisation fee would be inappropriate and potentially counter-productive. The Authorisation Fee linked to AGR, as discussed under Q38, is adequate to meet regulatory objectives.

Imposing a Minimum Authorisation Fee during such periods would penalize early-stage infrastructure deployment.

Act as a disincentive to network creation and capacity build-out

Undermine shared and neutral-host SCN models.

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

Nelco Response :The Authorisation Fee payment terms and conditions for Satellite Communication Network (SCN) authorised entities should be simple, predictable, non-

front-loaded, and aligned with the long-term investment and revenue-realisation profile of satellite communication networks.

Given that SCN authorisation is a network-layer, wholesale authorisation under Section 3(1)(b) of the Telecommunications Act, 2023, the payment framework should differ meaningfully from those applicable to retail telecom service providers.

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.

Nelco response: The terms and conditions for Performance Bank Guarantee (PBG) and Financial Bank Guarantee (FBG) applicable to Satellite Communication Network (SCN) authorised entities should be proportionate, risk-based, non-duplicitous, and aligned with the network-only, wholesale nature of SCN authorisation.

Bank Guarantees should function strictly as regulatory safeguards rather than as financial barriers to entry or indirect revenue instruments.

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

Nelco Response :The application processing fee for Satellite Communication Network (SCN) authorisation should be nominal, cost-based, and administrative in nature, intended solely to recover the actual cost incurred by the Authority in processing and evaluating the application.

It should not be treated as a licence or authorisation fee, nor as a mechanism for revenue generation.

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?

Nelco Response: Apart from the financial provisions already discussed (entry fee, authorisation fee, spectrum charges, bank guarantees, and application processing fee), the Respondent submits that no additional or extraordinary financial terms and conditions should be imposed for the proposed Satellite Communication Network (SCN) authorisation.