May 3, 2026

Via E-mail:
Telecom Regulatory Authority of India
Advisor (Networks, Spectrum and Licensing)
advmn@trai.gov.in

Attention: Shri Akhilesh Kumar Trivedi

Subject: Comments from AST SpaceMobile, on Consultation Paper No. 06 / 2026 on the Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers

Dear Sir,

We welcome the TRAI's detailed and granular examination of the issues germane to the establishment and adoption of Satellite Communication Networks in India in the captioned consultation paper.

As a subsidiary of the first space-based mobile broadband provider directly to unmodified devices, we welcome the opportunity to submit our thoughts in this Consultation. We remain available to present our submissions over a meeting, and support TRAI with its evaluation in any manner necessary.

Thank you for the opportunity to provide comments on this consultation paper.

Sincerely,

Shanti Gupta

Director

AST SpaceMobile India Pvt Ltd

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1. AST SPACEMOBILE

AST & Science, LLC. ("**AST SpaceMobile/We**") is a leading, NASDAQ listed, global manufacturer and operator of a space-based mobile broadband satellite network.

AST SpaceMobile is the first (and currently, only) provider building a space-based cellular broadband network of Low Earth Orbit ("**LEO**") satellites designed to connect directly to standard, unmodified smartphones using existing 4G LTE and 5G spectrum.

AST SpaceMobile's mission is to enable universal cellular broadband connectivity everywhere on Earth, especially remote, unserved, and underserved areas where extending terrestrial networks is unviable or impossible.

In India, this will enable high bandwidth digital connectivity in rural, terrain challenged areas, where traditional terrestrial penetration remains low, for public service and disaster management and emergency communication, telemedicine, financial inclusion, and other key use cases.

This outcome is directly aligned with the Government of India's Digital India programme and the National Broadband Mission, which targets broadband connectivity in every gram panchayat and seeks to bridge the digital divide in rural, remote, and underserved regions. By extending voice, data, and broadband services to unconnected and hard-to-reach areas - including for public safety, disaster response, and enterprise use cases, AST SpaceMobile demonstrates the viability of deploying satellite networks as an extension of licensed terrestrial telecom services and as a practical tool for achieving the Government's connectivity objectives.

AST SpaceMobile operates through a standards-based architecture fully interoperable with existing mobile networks and consumer devices, without requiring any device modification or proprietary terminals. We work in close partnership with the global mobile ecosystem and have entered into collaborations with over 50 mobile network operators ("**MNOs**") worldwide, representing nearly 3 (three) billion subscribers, including Vodafone, AT&T, Verizon, Rakuten, Telefónica and others. These partnerships underpin AST SpaceMobile's strategy of complementing, rather than competing with, terrestrial mobile networks, while ensuring compliance with national security, lawful intercept, emergency communications, and data protection requirements through integration with licensed operators.

AST SpaceMobile has always been invested in India, and established an engineering centre in Hyderabad, which carries out cutting-edge research engineering, satellite design, software development activities and network operating centre integral to AST SpaceMobile's global operations.

AST SpaceMobile seeks to build domestic capacity and expertise for satellite-based communications in India and is committed to the Government of India's Make-in-India and AatmaNirbhar Bharat initiatives. AST SpaceMobile has been partnering with many large and early-stage Indian companies in the aerospace

industry to establish a sustainable domestic production and supply of many of its leading-edge satellite components with an estimated annual trade value of more than INR 600 crores directly promoting employment of thousands of local work force in high skilled jobs.

AST SpaceMobile has demonstrated its commitment to India's space ecosystem through its use of Indian launch infrastructure, conducting satellite launches from India's Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh, leveraging the capabilities of the Indian Space Research Organisation ("**ISRO**") and its commercial arm, NewSpace India Limited ("**NSIL**"). These launches underscore AST SpaceMobile's confidence in India's space launch capabilities and its alignment with the Government of India's objective of positioning India as a global hub for commercial space activities.

AST SpaceMobile has entered into a strategic arrangement with Vodafone Idea Limited ("**VI**") to enable Direct-to-Device ("**D2D**") satellite-based cellular connectivity in India, complementing VI's terrestrial mobile network. VI holds spectrum assignments across all 22 Licensed Service Areas in India, providing a foundation for near-pan-India D2D coverage through this relationship.

2. AST SPACEMOBILE OPERATIONS

AST SpaceMobile is deploying a LEO constellation, which functions as a cellular 5G network in space and interoperates seamlessly with terrestrial mobile networks. The system uses the largest ever commercially deployed LEO phased-array antennas as well as cellular technologies aligned with 3GPP standards, enabling satellites to operate as "cell towers in the sky" and deliver cellular-grade voice, text, and broadband services directly to ordinary smartphones.

Unlike traditional satellite systems that rely on proprietary user terminals or narrowband services, AST SpaceMobile's architecture supports true direct-to-device ("**D2D**") connectivity, providing broadband and narrowband services using a combination of licensed mobile satellite service ("**MSS**") spectrum (including L- and S-bands) and mobile terrestrial ("**IMT**") spectrum through commercial arrangements with MNOs. The network does not depend on inter-satellite links and instead utilises regional and local gateways, allowing efficient spectrum use, lower latency, and alignment with national regulatory and security frameworks.

The network operates, *inter alia*, using low-band cellular frequencies (sub-1 GHz), which enables wide coverage footprints and deep signal penetration suitable for rural, maritime, and disaster-affected regions additionally, the network will operate using mid-band MSS and cellular frequencies (above-1 GHz).

AST SpaceMobile has successfully demonstrated critical milestones including two-way video calls, voice calls, broadband data connectivity, 5G connections, and emergency communications directly between satellites and unmodified smartphones. We have launched multiple operational satellites, including launches conducted from India's Satish Dhawan Space Centre, and plan to progressively scale its constellation toward continuous regional and global coverage. These capabilities position AST SpaceMobile to support a wide range of consumer, enterprise, public safety, and disaster-response use cases

through Satellite Communication Networks ("**SCNs**") operating in coordination with licensed service providers.

3. THIS CONSULTATION

AST SpaceMobile appreciates TRAI's detailed examination of the regulatory framework required to enable satellite communication networks in India and supports TRAI's objective of promoting connectivity, competition, and efficient spectrum use in furtherance of the public interest.

AST SpaceMobile works globally with licensed mobile network operators to enable satellite-based connectivity as an extension of terrestrial mobile services. In effect, under this model, AST SpaceMobile operates as a SCN provider, working with global telecommunications providers such as AT&T and Verizon, who are liable for telecommunication services to end users, including customer engagement, tariffing, lawful intercept, emergency calling, and other public service and national security obligations, and typically hold spectrum. AST SpaceMobile therefore supports TRAI's approach of treating the proposed SCN authorisation as a network-layer authorisation under Section 3(1)(b) of the Telecommunications Act, 2023, and wishes to make the submissions below basis its learnings from global experience in this space.

AST SpaceMobile submits that the SCN Authorisation framework should remain technology-neutral and flexible, enabling SCN Authorised entities to support Fixed Satellite Service ("**FSS**"), Mobile Satellite Service ("**MSS**"), and D2D connectivity, including where D2D services are enabled through commercial arrangements with licensed operators using IMT spectrum. At the network level, these services rely on the same underlying satellite infrastructure and coordination mechanisms, and distinctions among them are appropriately addressed at the service authorisation layer.

With respect to spectrum policy, AST SpaceMobile supports administrative assignment mechanisms for satellite spectrum. AST SpaceMobile also supports early enablement of D2D services using IMT spectrum pursuant to commercial arrangements with licensed MNOs. As recognised in the Consultation Paper, such services can play a significant role in addressing coverage gaps, improving connectivity in emergencies, and enhancing network resilience. Enabling this framework now, while retaining flexibility to incorporate future international developments, would support India's connectivity objectives.

AST SpaceMobile network design is also consistent with GMPCS security conditions.[1] First, AST SpaceMobile does not utilise intersatellite links, instead relies on regional and local gateways to land its traffic. In India, AST SpaceMobile anticipates it will have multiple gateway locations and the traffic landed at these gateways in India will be routed directly to the MNO who will meet the security conditions, including lawful intercept. AST SpaceMobile's satellite network will simply operate as a cell tower in the sky and not have access to the communications that transit its network.

[1] GMPCS Office Memorandum dated May 5, 2025 (accessible here)

Finally, AST SpaceMobile submits that the SCN framework should adopt a light-touch and proportionate regulatory approach, consistent with the network-only nature of the authorisation. Commercial arrangements between SCN Authorised entities and Service Authorised entities should be governed primarily by mutual agreement, without mandated reference agreements or regulated charges, while preserving regulatory visibility where appropriate.

AST SpaceMobile appreciates the opportunity to provide these comments and remains available to assist TRAI in its ongoing evaluation of the Consultation Paper.

4. AST SPACEMOBILE, INC.'S RESPONSES TO THE SELECT ISSUES FOR CONSULTATION

4.1. Query 1: 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.

AST SpaceMobile submits the following for the proposed eligibility conditions, area of operation, validity period, and scope of the SCN Authorisation:

Eligibility conditions

(a) The applicant should be an entity incorporated in India meeting relevant net worth conditions; and
(b) The applicant should have received requisite approvals under the then current Indian Space Policy.

The eligibility conditions should not inadvertently impose foreign direct investment ("**FDI**") restrictions inconsistent with the 100% FDI permitted in the telecommunications sector under the extant FDI Policy.

Area of operation

Given that the SCN Authorisation is intended to support satellite communication services across India and enable provisioning of network services to authorised service providers, the area of operation should be national.

This is not merely a policy preference but a technical necessity. LEO satellite constellations operate in orbital planes that traverse the entirety of the Indian landmass, territorial waters, and exclusive economic zones. A single satellite pass may cover portions of multiple Licensed Service Areas ("**LSAs**") simultaneously, and the satellite's coverage footprint cannot be confined to individual telecom circle boundaries. Requiring circle-specific authorisations for satellite networks would

impose artificial constraints on a technology whose coverage characteristics are inherently national and, indeed, transnational in nature.

Accordingly, any spectrum assigned for services supported under the SCN Authorisation should be pan-India in nature and not limited to specific telecom circles. Satellite-based services, including D2D communications, are inherently designed for wide-area geographic coverage, and a national authorisation would facilitate efficient deployment through commercial arrangements with telecom operators across service areas.

Validity Period and Renewal

The SCN Authorisation should be granted for a period of 20 (twenty) years from the effective date in line with the proposed validity period for other authorisations under the Telecommunications Act, 2023. The authorisation may be reviewed twelve months prior to expiry, and the renewed authorisation period may also be for 20 (twenty) years. This duration is appropriate given the capital-intensive nature of satellite constellation deployment. LEO satellites typically have operational lifespans of 5–7 years, meaning that SCN operators must plan across multiple constellation generations, including procurement, launch, and commissioning cycles. A 20-year authorisation provides the planning horizon necessary to justify the significant capital expenditure required for constellation deployment and renewal.

Further, as contemplated, the scope of the SCN Authorisation should explicitly encompass the establishment, operation, and maintenance of ground segment infrastructure, including feeder link gateways and baseband processing facilities. These elements are integral to the SCN and are not merely ancillary to satellite operations. Clarity on this point would ensure that SCN Authorised entities have the requisite authorisation to deploy the complete end-to-end network infrastructure necessary for the provision of Satellite Communication Network as a Service ("**SCNaaS**").

4.2. Query 2: 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.

AST SpaceMobile notes that under the Telecommunications (Authorisation for Telecommunication Network) Rules, 2025 ("**Draft Network Authorisation Rules**"), the general and security-related terms and conditions applicable to network authorisations can similarly be applicable on SCN Authorisation.

TRAI may consider incorporating the following technical and operating principles into the SCN Authorisation framework:

(a) Provide for SCN Authorised entities to operate pursuant to lease or commercial agreements with MNOs, and in accordance with the technical and operational requirements specified under such agreements; and
(b) Clear allocation of responsibility whereby service provision obligations, including compliance with national security and data-related requirements, rest with the partnering MNOs.

4.3. Query 3: 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.

AST SpaceMobile submits that Service Authorised entities should be permitted to seek SCNaaS from SCN Authorised entities under the proposed framework.

Under the draft rules issued pursuant to the Telecommunications Act, 2023, both Network Service Operators ("**NSOs**") and Virtual Network Operators ("**VNOs**") are recognised as Service Authorised entities. While access to SCNaaS can support competition and diverse service models, AST SpaceMobile submits that primary access to SCNaaS should be anchored at the level of NSOs, which retain end-to-end network control and are directly responsible for spectrum use, lawful interception, and security-related compliance.

Limiting SCNaaS access to NSOs ensures alignment between network control, security obligations (including Lawful Interception and Monitoring ("**LIM**")), and commercial responsibility, while avoiding unnecessary intermediation that increases costs without adding corresponding technical or regulatory value.

Allowing VNOs to access SCNaaS would introduce layered dependencies on underlying NSOs, leading to fragmented accountability, inefficiencies in pricing, and increased contractual complexity, without advancing the objectives of competition or service delivery.

4.4. Query 4: 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.

Authorised Entities which can operate as SCNs, establish, operate, maintain, and expand global satellite constellations.

As a result, SCNs:

(a) Will have the ability to develop, or otherwise deploy, "best in class" global technology, including in relation to the baseband systems;

(b) Will be able to leverage economies of scale for sourcing, and drive the adoption of standards; and
(c) Especially for satellite constellations, will be automatically incentivized, to deploy wide, robust, feeder links, to enable widespread, and effective monetization of their constellations in India.

For instance, AST SpaceMobile,

(a) Has developed the first and only space-based mobile broadband connectivity provider to unmodified devices;
(b) Uses low and mid-band IMT spectrum and L/S band MSS spectrum;
(c) Does not use Inter Satellite Links, and instead relies on local gateways; and
(d) Has over 50 (fifty) MNO partnerships and has an entire network of 248 (two hundred and forty eight) satellites and needs 90 (ninety) satellites for global coverage.

As has been observed by TRAI, baseband equipment is "the critical pivot point" and performs key activities such as modulation, demodulation and error correction[2]. This position is further supported by the 3GPP Non-Terrestrial Network ("**NTN**") architecture standards (Release 17 onwards), under which the satellite operates as a relay or regenerative node and baseband processing is necessarily centralised at the SCN operator level. The partnering MNO cannot replicate this function without access to the satellite operator's proprietary systems, making SCN-level baseband control a technical necessity rather than merely a commercial preference.

Given this background, it is our submission that:

(a) SCNs should have the ability to determine and deploy baseband equipment and infrastructure, and provide access to Service Authorisation holders;
(b) Control arrangements should be implemented on mutually agreed terms with Service Authorisation holders, in a manner compliant with their independent regulatory obligations;
(c) This architecture provides a natural and effective point for lawful interception and security compliance by the partnering MNO, without requiring baseband control to be vested in the MNO; and
(d) MSS Spectrum should be allocated directly to SCNs unlike the IMT spectrum.

This approach is coherent with TRAI's recommendations in relation to Satellite Earth Station Gateway ("**SESG**") architecture, and to ensure better compatibility between baseband equipment and the satellite constellations. Imposing mandatory or uniform requirements with respect to baseband-level control or visibility could constrain technological flexibility and interfere with efficient network operation.

[2] Consultation Paper on the Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers, April 08, 2026, para. 2.57 ("**Consultation Paper**").

Indeed, the logic which drove the 2022 recommendations[3] and the need for such ability is even clearer here, as the establishment of baseband infrastructure by operators of constellations, is inherent in the SCN Authorisation, and holders of Service Authorisations continue to be empowered to establish their own baseband infrastructure or gateways, including under the SESG framework.

4.5. Query 5: What provisions should be included in the terms and conditions of Satellite Communication Network (SCN) authorisation considering the policy/ Act in the Space sector? Kindly provide a detailed response with justification.

The terms and conditions of the proposed SCN Authorisation should expressly align with the Indian Space Policy, 2023 and the Norms, Guidelines and Procedures ("**NGP**") issued thereunder, which govern the authorisation of space activities having implications for India.

Accordingly, AST SpaceMobile submits that the following provisions should be incorporated into the terms and conditions of the SCN Authorisation:

(a) The SCN Authorisation should expressly recognise compliance with the Indian Space Policy, 2023 and the NGP as a prerequisite for the use of satellite systems within an SCN;

(b) The authorisation should include obligations relating to spectrum use, coordination, and conformity with notified filings, consistent with the Indian Space Policy, 2023 and the NGP, unless otherwise specifically authorised by the Government of India; and

(c) SCN Authorised entities should be subject to the general conditions applicable to telecommunication network authorisations, including those relating to (a) security requirements concerning trusted products and trusted sources; (b) maintenance of records etc.[4]

4.6. Query 6: 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.

Broadly, both the legacy framework under the Unified License and its evolution under Section 3(1)(b) of the Telecommunications Act, 2023, recognize the autonomy of licensed and authorized entities, and their ability to enter into negotiated agreements, while discharging their regulatory obligations.

[3]Recommendations on Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG), November 29, 2022.
[4] Chapter 5, Draft Network Authorisation Rules (accessible here).

This is true in the context of interconnect arrangements, spectrum sharing, as well as arrangements for infrastructure usage[5].

This balance has helped ensure compliance with regulatory imperatives, while allowing parties the flexibility to tailor arrangements to their respective business and deployment models.

For the reasons outlined in our response to Query 4 above, allowing authorized entities to arrive at their own commercially negotiated terms is more relevant in the context of SCN given the significant expertise and investment that authorized infrastructure providers bring.

AST submits that there is no need to mandate a standardised or regulator-prescribed reference agreement between SCN Authorised entities and authorised entities providing telecommunication services. However, it is appropriate to require that the provision of SCNaaS be governed by a mutual agreement between the concerned parties.

4.7. Query 7: 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.

The proposed SCN Authorisation is a network-level authorisation, and does not, by itself, permit the provision of telecommunication services to end users. Instead, SCN Authorised entities enable the provision of such services through commercial arrangements with Service Authorised entities that are licensed to provide telecommunication.

Accordingly, AST SpaceMobile submits that interconnection-related obligations should continue to rest with the authorised entities providing telecommunication services to end users, including those entities that partner with SCN Authorised entities for satellite connectivity.

In this context, the existing and proposed interconnection framework applicable to Service Authorised entities is sufficient to address interconnection requirements associated with services delivered using SCNs, and no separate or additional interconnection obligations need to be introduced for SCN Authorised entities.

4.8. Query 8: Any other inputs or suggestions relevant to the proposed Satellite Communication Network authorisation may kindly provided with detailed justification.

AST SpaceMobile submits the following additional inputs for consideration in the design of the SCN Authorisation framework:

[5] Draft Network Authorisation Rules (accessible here).

Roaming and Interoperability for Emergency Communications: The SCN framework should expressly address the ability of users of one partnering MNO's D2D service to receive emergency connectivity even when roaming in the coverage area served by another MNO's spectrum. This is critical for emergency communications, where the user's home network may not be available and the satellite footprint may be serving spectrum held by a different operator. Provisions enabling emergency-only interoperability across partnering MNOs would significantly enhance the public safety value of D2D services.

*4.9. **Query 9: Which of the following services should be permitted to be provided by using the SCNs established by the proposed SCN authorised entities:***
(a) Fixed Satellite Service (FSS);
(b) Mobile Satellite Service (MSS);
(c) Direct-to-Device (D2D) Service via satellite by using MSS spectrum;
(d) Direct-to-Device (D2D) Service via satellite by using IMT spectrum?
Kindly provide a detailed response with justification.

AST SpaceMobile submits that all listed services should be permitted to be delivered using SCNs.

As recognized under the draft rules released under Telecommunication Act, 2023 and TRAI Recommendations[6], each main service authorisation can be provided using satellite systems. Further, with respect to separate classification of MSS and D2D service via satellite by using MSS spectrum, it is submitted that the D2D represents a service delivery model through which MSS connectivity is extended to ordinary terrestrial mobile devices, in addition to specialised satellite terminals.

This position is supported by the ITU Radio Regulations definition of MSS, which encompasses communication between earth stations and space stations irrespective of the type of earth station terminal, and by the 3GPP NTN framework (Release 17 onwards), which explicitly recognises direct-to-device connectivity as an evolution of MSS rather than a separate service category.

With respect to FSS, feeder links constitute the backbone of the satellite-terrestrial architecture, connecting the satellite constellation to ground-based gateways and enabling the delivery of user-facing services. The FSS authorisation therefore performs an enabling function for the entire SCN, and any restriction on FSS spectrum access would effectively constrain the delivery of MSS and D2D services as well.

At the SCN (network) layer, both MSS and 'D2D services delivered using MSS' spectrum rely on the same underlying satellite architecture, spectrum resources, and ITU-compliant operating framework.

[6] TRAI on the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023 dated February 28, 2025 (accessible here).

For instance, AST SpaceMobile's existing constellation is already technically capable of delivering all four service categories - FSS, MSS, D2D via MSS spectrum, and D2D via IMT spectrum - using the same physical satellite infrastructure and phased-array antenna systems.

In line with the technology-neutral approach adopted by the Department of Telecommunications ("**DoT**"), there should therefore be no differentiation at the network level between MSS and D2D services delivered using MSS spectrum. Spectrum assignment should be permitted to entities that are technically capable of enabling the effective use of the relevant spectrum through their satellite architecture.

4.10. Query 10: 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.

AST SpaceMobile submits that D2D services via satellite using IMT spectrum should be permitted now without waiting for a WRC-27 decision. As noted in the present Consultation Paper, several countries have progressed with the D2D framework. While the outcome of WRC-2027 may have certain impact on the technical rules, commencing the process now will help India to progress on the path of creating infrastructure for enabling D2D services. The current architecture can be based on ring-fenced regulatory framework in consonance with Article 4.4 of the ITU Radio Regulations.

The Consultation Paper in paragraphs 2.99 and 2.104 underscores the importance of D2D services for public interest as well as servicing remote, rural, uncovered, and underserved areas where terrestrial networks are absent or economically unviable. Early enablement is also critical for emergency communications and resilience, where IMT D2D services, which can potentially reach 2G phones, can provide emergency connectivity.

Further, D2D-IMT connectivity plays a crucial role in solving the digital divide and addresses previous concerns by providing for: (i) efficient use of spectrum; (ii) high quality broadband and/ or narrowband available depending on network; (iii) complementary service to terrestrial infrastructure and in emergencies while using day to day devices; and (iv) has the potential to address issues of national security and public service requirements. Enabling D2D-IMT at this stage will therefore accelerate connectivity goals and ensure that India remains at the forefront of next-generation satellite–terrestrial integration.

AST SpaceMobile has already demonstrated broadband data connectivity, 5G connections, and emergency communications directly between satellites and unmodified smartphones. These demonstrations were conducted using IMT spectrum made available through commercial arrangements with MNO partners.

Any outcomes arising from WRC-2027 can subsequently be incorporated through adjustments to technical conditions or coordination requirements, without halting current progress. Given that D2D-IMT will be enabled through Service Authorisation holders, implementing these adjustments will clearly be possible.

4.11. Query 11: From the perspective of holding spectrum for the feeder link and the user link on SCNs, which of the following combinations should be permitted at the SCNs established by the proposed SCN authorised entities:

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

Kindly provide a detailed response with justification.

and

4.12. Query 12: Which of the following types of spectrum should be assigned to the proposed SCN authorised entities:

(a) Spectrum in the frequency bands allocated for FSS;

(b) Spectrum in the frequency bands allocated for MSS;

(c) Any other?

Kindly provide a detailed response with justification.

AST SpaceMobile submits that the spectrum in the frequency bands allocated for FSS and MSS should be eligible for assignment to SCN Authorised entities, as each supports different services rendered under the SCN framework.

In particular, L-band and S-band MSS spectrum is essential for D2D connectivity, as these bands, possess the propagation characteristics, including deep signal penetration and wide-area coverage necessary for serving rural and remote areas in India. With respect to feeder links, Q/V band spectrum is particularly appropriate due to its large available bandwidth, lower congestion relative to Ka-band,

and suitability for high-throughput gateway operations, enabling the capacity required to support broadband D2D and MSS services at scale.

To establish a robust, modern and technology first network, SCNs should be permitted the ability to design a network and configure services in the most efficient manner without constraints on allocation of a specific frequency band. Given the significant capital expenditure that will be incurred in establishing the satellite network, restriction on any specific frequency band will not be beneficial for promoting and attracting global players. Such an approach would enable SCN Authorised entities to support mobility-oriented services within a unified and efficient satellite network framework.

Therefore, we would recommend that holders of SCN Authorisations should be allowed to apply for allocation of all spectrum that their constellation is capable of servicing.

Further, all permutations of arrangements envisaged under Query 11 shall be permitted.

For instance, to provide feeder link services, SCNs may use spectrum in the Q/V band, for other services SCNs may rely on IMT terrestrial spectrum that it uses on behalf of MNOs.

As a logical corollary, regulators should permit, and indeed incentivize, to build "ready to market" services which enable both VSAT based, and D2D services.

AST SpaceMobile further submits that the Government may consider amending Schedule I, Entry 16 of the Telecommunications Act, 2023 to expressly include D2D services within the scope of satellite-based communication services. Entry 16 already covers a broad range of satellite communication services, including MSS in L- and S-bands, and inclusion of MSS using IMT bands would be consistent with the objective of extending the reach of telecommunications services. Similar views have also been expressed by other stakeholders in TRAI's *Recommendations on Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services* dated 9 May 2025.[7] Such clarification would support the spectrum-holding models outlined above and provide regulatory certainty for D2D deployments.

4.13. Query 13: What should be the broad policy and regulatory framework for the assignment of FSS spectrum and/ or MSS spectrum to the proposed SCN authorised entities? Specifically, - (a) NGSO-based FSS and GSO/ NGSO-based MSS: Whether in respect of NGSO-based FSS and GSO/ NGSO-based MSS, TRAI's recommendations dated 09.05.2025 on 'Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services' to DoT (read with the TRAI's response dated 08.12.2025 to DoT's back-reference dated 12.11.2025) should be made applicable to SCN authorised entities with necessary modifications? If yes, what modifications would be required in the terms and conditions for the

[7] Recommendations on Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services, May 09, 2025 (accessible here).

assignment of spectrum for NGSO-based FSS and GSO/ NGSO-based MSS? If no, what should be the terms and conditions for this purpose?

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

In response to (a), for the use of FSS spectrum such as the Q/V band for feeder links AST SpaceMobile supports the recommendation to permit shared use of the band among operators, consistent with international practice and the shared nature of satellite spectrum.

Further, while AST SpaceMobile supports the proposed 12-month milestone for construction and operationalisation of SESGs, the process of obtaining local approvals and clearances for gateway construction can be complex and time-consuming. AST SpaceMobile therefore requests that waivers or extensions be permitted where delays are reasonably justified and outside the control of the SCN.

AST SpaceMobile also has concerns regarding the proposed costs and charging approach for access to FSS spectrum. Of particular concern is the proposed per-subscriber charge in urban areas (while fully supporting differential charges favouring rural and remote areas), as it is unclear whether such charges are intended to apply to SCN networks that utilise FSS spectrum solely for feeder link capacity, and do not provide direct user services over FSS spectrum. AST SpaceMobile requests that this aspect be clarified, as it does not appear to align with the stated intent of the proposed framework. As a network service provider, charges on a per-user basis would not be relevant. Further, such charges may make it financially unviable for commercial arrangements with operators with lower capital base to absorb any costs that are not passed down to users and disrupt a level playing field.

In addition, the proposed 5-year validity period for spectrum assignment, is short for capital-intensive investments such as gateway infrastructure and associated ground segment deployment. AST SpaceMobile submits that greater certainty would be achieved if the framework provides for a five-year initial assignment with an autorenewal mechanism for further two 5-year terms based on milestones with respect to actual deployment and activation of services, so as to enable efficient long-term planning and investment while preserving regulatory oversight. Any concerns around non-use of spectrum can be addressed through mechanism of good faith mechanisms of co-existence.

4.14. ***Query 14: 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.***

AST SpaceMobile submits that eligibility for administrative assignment of FSS and/or MSS spectrum to SCN Authorised entities should be determined primarily by India's domestic authorisation and security framework. Accordingly, the following eligibility conditions should apply:

(a) Indian Entity Requirement

Eligibility should be expressly limited to entities incorporated in India under the Companies Act, 2013, with a demonstrable linkage to an IN-SPACe authorisation, in line with the Indian Space Policy, 2023 and the NGP.

(b) Administrative Assignment Route

AST SpaceMobile supports the continued use of the administrative assignment mechanism for FSS spectrum and MSS spectrum in L- and S-bands. Further, AST SpaceMobile submits that necessary amendments to Schedule I of the Telecommunications Act, 2023 may be considered to enable administrative assignment of IMT spectrum for MSS, including for emerging use cases. Administrative assignment, as opposed to auction, is internationally the established norm for MSS spectrum, including in the United States, the European Union, and the United Kingdom, because the ITU filing and coordination process itself ensures efficient use through coordination obligations.

(c) Use of Spectrum

Applicants should have the demonstrated ability to make use of spectrum assigned for their use.

4.15. ***Query 15: 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.***

AST SpaceMobile broadly supports TRAI's approach favouring efficient spectrum use and sharing, while submitting that different spectrum categories warrant differentiated treatment based on their technical characteristics and service roles.

(a) NGSO-FSS Bands (C/Ku/Ka/Q/V)

AST SpaceMobile supports shared assignment of NGSO-based FSS spectrum, including C, Ku, Ka and Q/V bands, consistent with international practice and TRAI's recommendations. These bands are primarily used for feeder-link and gateway operations, where spectrum sharing, backed by coordination and good-faith interference management, is technically feasible and operationally

efficient. In particular, for Ka- and Q/V-band feeder links, predictable and interference-managed access is essential to ensure reliable SCN operations, as feeder links are foundational to network availability and performance. AST supports shared access subject to clear coordination and interference-avoidance principles. In fact, AST SpaceMobile uses the Q/V band for its feeder-link and gateway operators to support its service link operations in MSS and IMT spectrum.

(b) MSS Spectrum (L- and S-Bands)

By contrast, AST SpaceMobile submits that MSS spectrum in the L- and S-bands should be assigned in sufficiently sized exclusive blocks, at least 10 MHz and preferably 15 MHz channels, to support broadband capabilities and meet the requirements of 3GPP standards. Adequate channel bandwidth enables SCN licensees to support a full range of services, from IoT to broadband, without inefficiently dedicating spectrum to isolated applications. While exclusivity is necessary in these bands due to their limited bandwidth, widespread device deployment, and narrow coordination margins, which make spectrum sharing impracticable, akin to mobile terrestrial spectrum, we are also comfortable with shared assignment subject to non-interference.

AST SpaceMobile further submits that MSS spectrum should continue to be assigned through an administrative process, as contemplated under Entry 16 of the First Schedule to the Telecommunications Act, 2023. Overall experience demonstrates that auctions for satellite spectrum have generally been unsuccessful. An administrative framework that evaluates technical capability, coverage commitments, and deployment timelines will better support efficient investment, timely rollout, and the public interest.

4.16. Query 16: In case it is decided to permit the proposed SCN authorised entity to utilize the FSS spectrum and/ or MSS spectrum assigned to a service authorised entity ("partnering entity") for the purpose of providing SCNaaS to the partnering entity – whether there is a need to establish a policy and regulatory framework for enabling the SCN authorised entity to enter into an agreement/ arrangement with the partnering entity to utilize FSS spectrum and/ or MSS spectrum assigned to such partnering entity for the purpose of providing SCNaaS to the partnering entity?
(i) If yes, what should be the terms and conditions under such a framework?
(ii) If no, in what manner such agreements/ arrangements should be enabled and regulated?
Kindly provide a detailed response with justification.

and

4.17. Query 17: 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.

AST SpaceMobile submits that, for SCN Authorised entities permitted to utilise the FSS and/or MSS spectrum assigned to a partnering Service Authorised entity for the delivery of SCNaaS, a light-touch regulatory framework should be adopted to ensure transparency for the Government while preserving commercial flexibility for the parties.

Specifically, AST SpaceMobile submits that the framework should require a written agreement between the SCN Authorised entity and the partnering entity, setting out, *inter-alia* (i) the frequency ranges to be made available for SCNaaS; (ii) the geographical areas within which such spectrum may be utilised; (iii) the duration of the arrangement; and (iv) the technical operating parameters necessary to ensure that spectrum usage aligns with the partnering entity's spectrum rights and obligations.

AST SpaceMobile further submits that such arrangements should be notified to the DoT, solely for regulatory visibility, so that the Government has clarity on how FSS/MSS spectrum is being utilised within the SCN framework. However, the commercial terms including financial considerations, service levels, and operational arrangements should remain subject to mutual negotiation, without mandated disclosure or standardisation, consistent with international practice and to support innovation in satellite–terrestrial integration models. Further, we suggest that agreement as submitted to DoT remains confidential.

This balanced approach ensures (i) compliance with the partnering entity's service authorisation and spectrum rights, (ii) regulatory oversight where appropriate, and (iii) commercial flexibility for parties to structure arrangements suited to their technical and business models.

4.18. Query 18: 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.

AST SpaceMobile supports the use of L- and S-band MSS spectrum for D2D services and submits that no separate or additional policy or regulatory framework is required for enabling or regulating such services.

D2D services using MSS spectrum represent a technical enhancement delivered over the same MSS spectrum allocations, without any change to the underlying licensing or authorisation framework applicable to MSS. Treating MSS-based D2D as part of the existing MSS regime is consistent with the principles of technological neutrality and avoids unnecessary fragmentation of spectrum regulation. Creating a separate regulatory framework for MSS-based D2D would introduce artificial distinctions between handheld MSS, IoT-based MSS, and D2D-enabled MSS services, despite their shared spectrum and operational characteristics.

AST SpaceMobile further submits that D2D services would be provided by Service Authorised entities, including MNOs, to the users and would therefore remain subject to the same regulatory, security, lawful interception, and compliance obligations applicable to tower-based connectivity. Where such obligations apply to the partnering MNO, they should apply equally in the context of D2D services delivered using MSS spectrum. Where MSS operators themselves are required to comply with applicable security conditions, the same would continue to apply in the D2D context.

India already prescribes granular security and regulatory conditions for satellite telephony, including for emergency use cases. AST SpaceMobile submits that these existing requirements provide a sufficient regulatory framework and can be complied with in the D2D context through the service authorisation and partnership model, without the need for additional licensing or regulatory layers.

4.19. Query 19: In case with a view to enable D2D service via satellite using IMT spectrum, it is decided to permit the proposed SCN authorised entity to utilize IMT spectrum assigned to a service authorised entity ("partnering entity") for the purpose of providing SCNaaS to the partnering entity, -

(a) whether there is a need to establish a policy and regulatory framework for enabling the SCN authorised entity to enter into an agreement/ arrangement with the partnering entity to utilize IMT spectrum assigned to such partnering entity for the purpose of providing SCNaaS to the partnering entity? If yes, what should be the terms and conditions under such a framework? If no, in what manner such arrangements should be enabled and regulated?

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

(c) For the frequency bands identified for IMT where D2D is decided to be permitted, whether the National Frequency Allocation Plan (NFAP) should be modified to include MSS on a secondary basis? If yes, kindly furnish your suggestion for the proposed modification(s).

(d) To mitigate the issues related to cross-border interference, whether any other condition in addition to Article 4.4 of the ITU-Radio Regulations is required to be made applicable?

(e) What regulatory framework should be established for ensuring interference-free operation of D2D service via satellite by using IMT spectrum within the country? Specifically, which of the following methods should be followed:

(i) The SCNs established by SCN authorised entities should be permitted to be used to provide D2D service via satellite by using IMT spectrum only if a single partnering entity (access service provider) holds the relevant IMT frequency channel in all the 22 LSAs of the country and agrees to permit the usage of its IMT frequency channel by the SCN authorised entity at its SCN for the purpose of providing SCNaaS; or

(ii) The SCNs established by SCN authorised entities should be permitted to be used to provide D2D service via satellite by using IMT spectrum if one or more access service providers – together holding the assignment of the relevant IMT frequency channel across all 22 licensed service areas of the country – agree to allow the usage of their IMT frequency channel by the SCN authorised entity at its SCN for the purpose of providing SCNaaS; or

(iii) Any other method?

Kindly provide a detailed response with justification.

AST SpaceMobile submits that, if D2D services via satellite using IMT spectrum are permitted, the regulatory framework must be anchored in the principle that the entity to whom IMT spectrum is assigned remains the primary rights-holder and continues to bear all regulatory, interference management, and compliance obligations. Any utilization of such spectrum by an SCN Authorised entity should therefore be strictly on a contractual, non-transfer basis, without creating any independent spectrum rights in favour of the SCN entity. Accordingly, no separate or prescriptive regulatory framework is required to enable an SCN Authorised entity to utilise IMT spectrum assigned to a partnering Service Authorised entity for the provision of SCNaaS. Such arrangements should be enabled through commercially negotiated agreements between authorised entities.

With respect to interference management, AST SpaceMobile's technical architecture incorporates multiple layers of mitigation: (i) the satellite operates with beams that have approximate diameter of 48 km for frequency bands below 1 GHz and 24 km frequency bands above 1 GHz, meaning that energy is focused within the desired locations and inherently limiting the risk for harmful interference; (ii) AST's system implements geofencing and dynamic beamforming, per-beam power control, capabilities and selective cell vacating to avoid providing service to specific unwanted geographic areas or suppress transmission in areas of high terrestrial density where terrestrial infrastructure is operating and interference risk is elevated; and compliance concerns; and (iii) the Article 4.4 framework imposes a positive obligation on the satellite operator to cease transmission if interference is caused, providing a self-executing protection mechanism for terrestrial operators. Critically, the partnering MNO is itself the spectrum rights holder and has every incentive to design the SCNaaS arrangement in a manner that does not cause interference to its own terrestrial network. The MNO's self-interest in protecting its terrestrial operations in close partnership with the SCN operator constitutes the most effective interference management mechanism.

With respect to frequency bands, it is submitted that no ex-ante restriction should be imposed. Instead, band-specific suitability should be evaluated based on technical feasibility and ecosystem maturity. Consequently, modifications to the National Frequency Allocation Plan ("**NFAP**"), may be limited to enabling MSS operations in identified IMT bands to enable D2D services.

For ensuring interference-free operation of D2D services via satellite using IMT spectrum within the country, AST SpaceMobile advocates a framework based on flexible partnership arrangements. In this regard, AST SpaceMobile suggests a structuring under which one or more access service providers whether holding the assignment of the relevant IMT frequency channel across all 22 (twenty-two) LSAs or in a subset of the 22 (twenty-two) LSAs may collaborate with an SCN Authorised entity to enable provision of SCNaaS. No single mobile network operator in India holds the same IMT frequency channel across all 22 (twenty-two) LSAs in all relevant bands and requiring

a single operator to hold pan-India spectrum in a single channel as a precondition would render the D2D-IMT model practically unworkable. Additionally, with sufficiently small beams, there is no reason from an interference perspective that this should be required. Small beams are a precursor to providing D2D services using IMT spectrum. D2D services should be enabled through flexible partnership arrangements.

4.20. Query 20: 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.

AST SpaceMobile urges the Government of India to move forward expeditiously with the establishment of a regulatory regime to enable D2D services. The D2D broadband services that AST SpaceMobile proposes to offer in partnership with Indian mobile network operators have the potential to meaningfully address connectivity gaps and help bridge the digital divide in remote and rural parts of India. Connectivity in remote and rural areas remains significantly deficient. Populations in the northeastern states, Himalayan regions, island territories (Andaman & Nicobar, Lakshadweep), and coastal and maritime areas have limited or no terrestrial coverage. D2D satellite connectivity is the only near-term technology solution capable of reaching these populations. D2D connectivity can enable telemedicine and remote learning in areas where no terrestrial broadband exists, directly supporting the Government's healthcare and education objectives.

In this context, AST SpaceMobile submits that existing licensing, spectrum, and network authorisation frameworks, once extended to explicitly enable D2D use cases, are sufficient to support the delivery of D2D services, and that regulatory certainty and timeliness will be key to realizing the intended public interest benefits.

4.21. Query 21: 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.

N/A

4.22. Query 22: 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.

AST SpaceMobile submits that charges exchanged between an SCN Authorised entity and a Service Authorised entity under agreements for the provision of SCNaaS need not be regulated. This position

is supported by the established precedent in the Indian telecommunications sector, where charges paid by MNOs to passive infrastructure providers, such as tower companies including Indus Towers and ATC India, are not regulated by TRAI and are left to commercial negotiation. SCNaaS charges are functionally analogous: the SCN entity provides infrastructure (satellite network capacity), and the service provider pays for access. Regulatory intervention in infrastructure-to-service-provider pricing has consistently been limited in the Indian telecom context, and there is no basis for departing from this approach in the satellite domain.

As outlined in our response to Query 12 above, establishing SCN infrastructure requires extensive capital investments and technology. Different constellations offer different capabilities, and therefore vastly different value propositions and pricing structures to service authorisation holders. As such, where SCNaaS is provided using MSS/FSS allocated to the service authorized entity enabling value discovery by SCNaaS providers will incentivize deployment of more capable and robust infrastructure, by them. Entities having service authorisation availing SCNaaS from SCN authorized entities will also naturally be incentivized to offer services widely, and market dynamics will drive determination of market competitive rates. Any top-down approach of fixing charges will stifle growth of a nascent industry. Furthermore, price regulation of SCNaaS charges would deter the significant capital investment required to deploy and upgrade satellite constellations, creating a negative incentive precisely at the technology frontier where India seeks to attract global investment.

Regulating Service Level Agreements ("**SLA**") may not be relevant since the Service Authorized entity remains subject to compliance with authorisation requirements including with respect to quality of service which can be directly co-related to standards of operating underlying network infrastructure, these will be contractually discussed and agreed between the parties.

With respect to efficient utilization of spectrum, we submit that given that Authorized entities will be subject to spectrum usage charges, it would be best left to the entities to decide on the most efficient manner of utilization based on available technology. Our submission to Query 14 above already provides for milestones for extension of administrative allocation, which will also act as a driver for entities to self-regulate efficiency through technological advancement on the network infrastructure.

Further, since the end customer is serviced by the Service Authorised entity, end-customer rights will be protected and Service Authorised entities will be best placed to negotiate and effect dynamic terms based on their requirements.

4.23. Query 23: 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.

AST SpaceMobile submits that there is no need to regulate charges exchanged between an SCN Authorised entity and a Service Authorised entity under agreements for the provision of SCNaaS supporting D2D services using MSS spectrum. As noted in our response to Query 22 above, these arrangements operate entirely as B2B, on network-layer level and do not affect retail pricing or consumer outcomes.

Even in D2D scenarios using MSS spectrum, the Service Authorised entity retains full control over end-user relationships, including tariffs, service plans, and compliance with applicable consumer protection and regulatory obligations. The SCN Authorised entity provides only the satellite network capability and does not provide telecommunication services directly to end-users.

Given this clear division of responsibilities, the commercial terms including charges, service levels, performance metrics and operational parameters are most appropriately determined through bilateral contractual arrangements between the parties. Any utilisation of MSS spectrum continues to be governed by applicable authorisation and spectrum assignment conditions.

In light of the above, AST SpaceMobile submits that regulation of charges under SCNaaS agreements supporting D2D services using MSS spectrum is neither necessary nor proportionate, and that commercially negotiated arrangements, supported by contractual safeguards and light-touch regulatory oversight, provide sufficient protection while enabling efficient deployment of D2D services.

4.24. ***Query 24: 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.***

AST SpaceMobile submits that, notwithstanding TRAI's recognition of the distinct characteristics of D2D services using IMT spectrum, given the auction-assigned, LSA-specific, and competition-sensitive nature of IMT spectrum, there is no need to regulate charges exchanged between an SCN Authorised entity and a Service Authorised entity under SCNaaS agreements supporting such services.

The feeder link network functionality remains materially unchanged and continues to operate independently of whether the user link spectrum is MSS or IMT based. The sole novel element in

IMT-based D2D is that IMT spectrum is allocated to the access service provider. The SCN Authorised entity does not acquire, hold, or commercialize IMT spectrum directly, consistent with the framework outlined in the Consultation Paper.[8]

Given that the SCN Authorised entity's role and revenue model remain network-layer-oriented, and do not extend to provision or monetization of IMT spectrum, there is no basis for modifying or regulating SCNaaS charges solely due to the use of IMT spectrum at the service layer.

4.25. Query 25: 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.

AST SpaceMobile submits that charges paid by a Service Authorised entity to an SCN Authorised entity for provisioning of SCNaaS should be permitted to be deducted from the ApGR of the Service Authorised entity for the purpose of arriving at AGR.

Payments for the procurement of satellite communication network capacity and associated infrastructure are in the nature of pass-through costs, as they are not retained by the Service Authorised entity but are incurred for availing network capabilities from the SCN Authorised entity. Accordingly, these amounts constitute input costs rather than revenue in the hands of the Service Authorised entity. This is consistent with the established AGR framework, wherein revenues that are in the nature of pass-through payments such as interconnection usage charges ("**IUC**") and roaming charges are excluded from AGR. SCNaaS charges are analogous in character, as they represent consideration for access to underlying network infrastructure rather than value retained at the service layer. Applying the same principle, such charges should be deducted from gross revenue prior to computation of AGR for the purpose of levy of authorisation fees and spectrum charges.

Permitting deduction of SCNaaS charges would also enable wider adoption of SCN-based solutions for last-mile connectivity, including D2D services, by ensuring appropriate cost attribution and avoiding distortive levy outcomes.

4.26. Query 26: 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.

N/A

[8] Para 2.123, Consultation Paper

4.27. ***Query 27: 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.***

For SCN Authorisation, the definitions of GR, ApGR and AGR should be specifically tailored to reflect the layered nature of satellite communication networks. The framework should ensure that each Authorised entity is subject to levies only on revenue actually earned and retained from its own authorised activities.

(a) **GR** for an SCN Authorised entity should include only revenues arising from the provision of satellite communication network services, including SCNaaS charges received from Service Authorised entities.

(b) **ApGR** should exclude income not directly attributable to telecom or network operations, and should allow deductions, in addition to existing exclusions, for:

(i) Payments made for procurement of spectrum usage rights, where applicable;
(ii) Payments for satellite capacity, including under related-party arrangements;
(iii) Pass-through and upstream network-related payments made for procurement of satellite communication network capacity and associated infrastructure;
(iv) insurance proceeds relating to satellite assets; and
(v) Payments made to other authorised entities which are in the nature of pass-through charges for provision of underlying network infrastructure or services.

4.28. ***Query 28: 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?***

and

Query 29: 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.

AST SpaceMobile submits that SCN Authorised entities will not monetize spectrum independently or hold spectrum for standalone retail or speculative use. Any spectrum assigned to an SCN Authorised entity would be deployed exclusively in support of SCNaaS arrangements entered into

with Service Authorised entities. As a network-layer entity, the SCN Authorised entity derives revenue only from deployment and utilization of spectrum as part of SCNaaS provisioning, and not from mere possession of spectrum.

While the spectrum charges applicable to SCN Authorised entities may be broadly anchored to TRAI's Recommendations dated May 09, 2025, for satellite-based commercial communication services, as a matter of principle, the imposition of a minimum spectrum usage charge would not be appropriate.

The relevant feeder-link spectrum bands are not capacity constrained, and introducing a minimum charge would impose an additional financial burden that is unrelated to actual spectrum utilization or revenue generation. This burden would be particularly acute during early deployment phases, where significant capital expenditure on satellite and ground infrastructure is incurred well before commercial scale-up is achieved. Such an approach risks making SCN operations commercially unviable.

Accordingly, AST SpaceMobile submits that spectrum assigned to SCN Authorised entities should be subject only to AGR-linked usage charges, without the imposition of any minimum spectrum usage charge. This would constitute a proportionate, network-appropriate financial condition aligned with the functional role of SCN Authorised entities and the intended objectives of the SCN framework.

4.29. ***Query 30: 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.***

Please refer to our response to Query 27.

4.30. ***Query 31: 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.***

N/A

4.31. ***Query 32: 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.***

AST SpaceMobile submits that use of MSS spectrum in L- and S-bands for the provision of D2D services does not alter the fundamental nature or classification of such spectrum. The spectrum continues to remain MSS spectrum, irrespective of whether it is utilised for satellite phones or for enabling D2D connectivity on standard cellular devices.

Accordingly, the spectrum assignment and charging framework applicable to MSS spectrum should remain unchanged. In line with the First Schedule of the Telecommunications Act, 2023, MSS spectrum for satellite phones in L and S bands is assigned through an administrative mechanism, the same process shall govern the usage of MSS spectrum for D2D services. No separate or differentiated spectrum charging framework is warranted solely on account of the application layer through which services are delivered.

As noted by TRAI in the present Consultation Paper,[9] there is no distinction in spectrum charging between MSS spectrum used for conventional MSS services and MSS spectrum used for D2D services. Therefore, no additional or specific spectrum charging framework is required for D2D services using MSS spectrum.

4.32. Query 33: 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.

It is submitted that, in cases where D2D services are permitted to be provided using IMT spectrum assigned to a Service Authorised entity, no additional or separate spectrum usage charges should be levied on the partnering entity for utilisation of such spectrum.

IMT spectrum is assigned to the Service Authorised entity through an auction-based mechanism, and the associated spectrum usage rights, along with the obligation to pay spectrum-related charges, vest with such entity. The use of this spectrum for provision of D2D services, including through arrangements with an SCN Authorised entity, constitutes an extension of the authorised use of the same spectrum resource, and does not result in the creation of a distinct or separately assignable spectrum right.

In such arrangements, the SCN Authorised entity does not acquire, hold, or independently utilise IMT spectrum, but merely enables the provision of services by the Service Authorised entity through integration of satellite network capabilities with the terrestrial IMT network. Accordingly, the

[9] Para 2.117 of the Consultation Paper.

liability for spectrum-related charges should remain with the Service Authorised entity to whom the spectrum has been assigned.

Levying any additional spectrum usage charges on account of such utilisation would result in duplication of spectrum levies for the same underlying resource, which has already been assigned through auction and is subject to applicable licence fee and spectrum usage charges. Such an approach would not be consistent with the principles of efficient spectrum utilisation and could adversely impact the economic viability of D2D services and adversely impact their timely rollout, despite their significant potential to enhance connectivity across India, particularly for emergency and critical use cases in remote areas.

4.33. Query 34: 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.

It is submitted that the payment terms for spectrum charges applicable to SCN Authorised entities may align with the periodic payment framework prescribed under the Draft Telecommunications (Authorisation for Provision of Main Telecommunication Services) Rules, 2025 ("**Draft Main Authorisation Rules**"),[10] including quarterly payment mechanisms.

The payment framework should be guided by the following overarching principles, applied consistently across the spectrum management regime:

(a) Clarity of liability: the obligation to pay spectrum-related charges should attach to the entity to whom the spectrum is assigned, ensuring consistency with the assignment framework;
(b) Payment timelines and obligations should be clearly defined and stable over the term of the authorisation, to support long-term network planning and investment;
(c) Payment terms should remain consistent with the duration and conditions of the underlying spectrum assignment; and
(d) Where applicable, mechanisms for reconciliation should be clearly defined, to avoid uncertainty.

Accordingly, while the periodicity of payments may follow the existing framework, the overall structure should remain simple, predictable, and aligned with the principles governing spectrum assignment and usage.

4.34. Query 35: 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.

[10] Chapter 4, Draft Telecommunications (Authorisation for Provision of Main Telecommunication Services) Rules, 2025 released on September 5, 2025 (accessible here).

AST SpaceMobile submits that Minimum Spectrum Charges should not be levied on SCN Authorised entities as set out in our responses to Queries 28 and 29.

4.35. ***Query 36: 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.***

AST SpaceMobile submits that no minimum equity or minimum net worth requirements should be prescribed for SCN Authorised entities.

SCN Authorisation is a network-layer authorisation and does not involve the provision of telecommunication services directly to end users. This approach is consistent with the Draft Network Authorisation Rules,[11] including the SESG authorisation, under which no minimum equity or net worth requirements have been prescribed.

Imposing minimum equity or net worth thresholds for SCN Authorised entities would be inconsistent with the treatment of other network-only authorisations and could create unnecessary entry barriers, particularly for capital-intensive satellite network deployments.

4.36. ***Query 37: What should be the entry fee for proposed Satellite Communication Network (SCN) authorisation? Please provide detailed justification in support of your response.***

and

Query 41: 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.

and

Query 42: What should be the application processing fee for Satellite Communication Network (SCN) authorised entity? Please provide detailed justification in support of your response.

AST SpaceMobile submits that the entry fee for SCN Authorisation should be reasonable and limited to recovery of administrative costs associated with processing and grant of network layer authorisation.

In line with the SESG Provider Authorisation, which is the closest regulatory analogue, the entry fee for SCN Authorisation may be set at INR 10,00,000 (Indian Rupees Ten Lakh). Given that SCN

[11] Draft Telecommunications (Authorisation for Telecommunications Network) Rules, 2025 released on October 9, 2025 (accessible here).

Authorised entities do not provide telecommunication services directly to end users, higher entry fees would be unwarranted.

Additionally, no PBG or FBG should be required for SCN Authorised entities. This would be consistent with the treatment of other network-only authorisations, including the SESG authorisation, under which no bank guarantees are prescribed. Imposing such requirements would not be proportionate to the role or risk profile of SCN Authorised entities.

Further, the application processing fee for SCN Authorisation should be aligned with other network authorisations under the Telecommunications Act, 2023. Accordingly, AST SpaceMobile submits that a processing fee of INR 10,000 (Indian Rupees Ten Thousand), consistent with fees prescribed for SESG and other network-only authorisations under the Draft Network Authorisation Rules, would be appropriate. Such an approach would ensure regulatory consistency and avoid imposing unnecessary financial burdens on SCN Authorised entities.

4.37. ***Query 38: 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.***

and

Query 39: 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.

and

Query 40: What should be the appropriate payment terms & conditions for Authorisation Fees? Please provide detailed justification in support of your response.

AST SpaceMobile submits that no authorisation fee should be levied for SCN Authorisation as it is a network-layer authorisation and does not involve the provision of telecommunication services directly to end users. This position is consistent with the regulatory treatment of other network-only authorisations, including Cloud Hosted Telecommunications Network and SESG Provider Authorisations, for which no authorisation fee is prescribed.

Authorisation fees are traditionally linked to service authorisations involving retail service provision, tariffing, and consumer-facing obligations. Applying such fees to SCN Authorised entities would therefore be inconsistent with the established regulatory framework and disproportionate to the nature and scope of SCN Authorisation.

In line with the above, AST SpaceMobile submits that no minimum authorisation fee should be applicable for SCN Authorisation, consistent with the proposed position that the applicable authorisation fee itself should be NIL.

Further, given that no authorisation fee is proposed, AST SpaceMobile submits that no payment terms or conditions are required in respect of authorisation fees for SCN Authorised entities.

4.38. Query 43: Apart from the financial provisions discussed earlier, are there any other financial terms and conditions that should be made applicable for the proposed Satellite Communication Network authorisation? Kindly provide a detailed response with justifications.

N/A