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भारतीय दूरसंचार विनियामक प्राधिकरण

Telecom Regulatory Authority of India

Consultation Paper on the Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers

New Delhi, India

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Written Comments on the Consultation Paper are invited from stakeholders by 06.05.2026 and counter-comments by 20.05.2026. The comments and counter-comments may be sent, preferably in electronic form, to Shri Akhilesh Kumar Trivedi, Advisor (Networks, Spectrum and Licensing), TRAI on the email ID advmn@trai.gov.in. Comments and counter-comments received from stakeholders will be posted on the TRAI's website (www.trai.gov.in).

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CHAPTER I: INTRODUCTION

A. Evolution of Satellite Communications

1.1 In October 1945, Arthur C. Clarke, an English science fiction writer, published a seminal article titled 'Extra-Terrestrial Relays: Can Rocket Stations Give Worldwide Radio Coverage?' in the British magazine - Wireless World[1]. In the article, Clarke laid the foundation for satellite communications. Clarke's idea was revolutionary. Clarke proposed the concept of communication satellites to enable global radio and TV coverage. Remarkably, he performed precise calculations showing that if a satellite orbited at approximately 35,786 km from the Earth's surface, it would orbit in sync with the Earth's rotation. Such a satellite would appear stationary from any fixed point on Earth — what we now call a geostationary orbit. He also pointed out that three such satellites, placed 120 degrees apart above the equator in the geostationary orbit, could provide global communications coverage.[2]

1.2 The journey from concept to reality began in October 1957, when the former Soviet Union launched the first satellite, Sputnik 1.[3] Sputnik 1 stayed in its orbit for about three months. This historic event spurred significant advancements in satellite technology. Clarke's vision of satellite communication moved closer to realization in July 1962 with the launch of Telstar 1. Telstar 1 was the first satellite to transmit live television images

[1] Source: https://spacelaw.uniandes.edu.co/images/d_arthur_clarke.pdf

[2] Source: https://www.comsoc.org/node/19071

[3] Source: https://www.nasa.gov/history/dawn-of-the-space-age/

between Europe and North America.[4] Telstar 1 was in a non-geostationary orbit, so it worked only for short periods as it moved. The Clarke's concept finally became a reality in 1963 when NASA successfully launched Syncom-2, the first geosynchronous satellite, proving that Clarke's idea from nearly two decades earlier was indeed achievable.[5]

1.3 Following the technological milestones in satellite communication, the U.S. government passed the Communications Satellite Act in 1962. The Act paved the way for the formation of INTELSAT - the international satellite communications consortium. INTELSAT began in 1964 with 11 member countries.[6] In 1965, Intelsat-1 (nicknamed Early Bird), the first commercial geostationary communications satellite, started providing regular telephone service across the Atlantic Ocean[7], fulfilling Clarke's vision. Over the years, satellite technology advanced significantly, leading to greater capabilities in global communications.

B. Development of Satellite Communications in India

1.4 With the live transmission of Tokyo Olympic Games across the Pacific by the American Satellite 'Syncom-3' demonstrating the power of communication satellites, Dr. Vikram Sarabhai, the founding father of Indian space programme, quickly recognized the benefits of space technologies for India. Dr. Sarabhai was convinced and envisioned that the resources in space have the potential to address the real problems of man and society. To spearhead

[4] Source: https://www.nasa.gov/history/telstar-opened-era-of-global-satellite-television/

[5] Source: https://www.nasa.gov/image-article/first-geosynchronous-satellite/

[6] Source: https://k2communications.net/the-intelsat-story/

[7] Source: https://www.historyofinformation.com/detail.php?id=3152

the space research activities, Indian National Committee for Space Research (INCOSPAR) was set up in 1962 under the chairmanship of Dr. Sarabhai. Subsequently, Indian Space Research Organisation (ISRO) was established in August 1969, in place of INCOSPAR. The Government of India constituted the Space Commission and established Department of Space (DoS) in June 1972 and brought ISRO under DoS in September 1972.[8] In 1975, India launched its first satellite, Aryabhata, primarily for scientific research.[9] In 1983, the Indian National Satellite (INSAT) system was established.[10] It initiated a major revolution in India's communications sector. It contributed immensely to the expansion of television, telephony, and meteorological services, marking a critical phase in India's satellite communication history. In the decades that followed, India's communication satellite program grew steadily, achieving significant successes that strengthened national connectivity and positioned the country as a key player in satellite communications.

C. Satellite Communication Network

1.5 A satellite used for telecommunications is often referred to as a 'communication satellite'. In general, communication satellites serve as relay stations in space, receiving signals transmitted from Earth, amplifying them, and retransmitting them to other locations on the globe.

1.6 Satellite-based communication systems offer a unique ability to reach remote, inaccessible or sparsely-populated areas – including regions of strategic importance or socio-economic significance, where terrestrial mobile coverage

[8] Source: https://www.isro.gov.in/genesis.html

[9] Source: https://www.isro.gov.in/aryabhata_1.html

[10] Source: https://www.isro.gov.in/CommunicatioSatellitenNew.html

or fibre connectivity may be absent or extremely expensive to deploy. By bypassing the need for large ground-infrastructure networks, such satellite systems can help bridge the digital divide, extend telecommunication and broadband services, and enhance national coverage. In the Indian context, with its vast geography and varied terrain, satellite systems are especially well-suited to extend connectivity into underserved areas.

1.7 A typical satellite communication system consists of space segment, control segment and ground segment as outlined below:

(a) Space segment – One or more satellites in orbit.

(b) Control segment – Ground-based facilities responsible for satellite command & control, payload monitoring and traffic/ resource management onboard the satellite.

(c) Ground segment – Earth stations through which traffic is sent and received. These earth stations are of three functional types:

  (i) User stations: Earth stations providing direct access to the space segment - for example handsets, very small aperture terminals (VSATs).

  (ii) Interface stations (gateways): Earth stations that interface the satellite network with terrestrial networks, acting as gateways between the space and terrestrial domains – often referred to as gateway earth stations.

  (iii) Service stations (hubs): Earth stations that collect or distribute information from/ to user earth stations via the space segment, often acting as central nodes in the network.

1.8 The following figure shows three key elements of a typical satellite communication system (viz. satellite, gateway earth station, and user earth station).

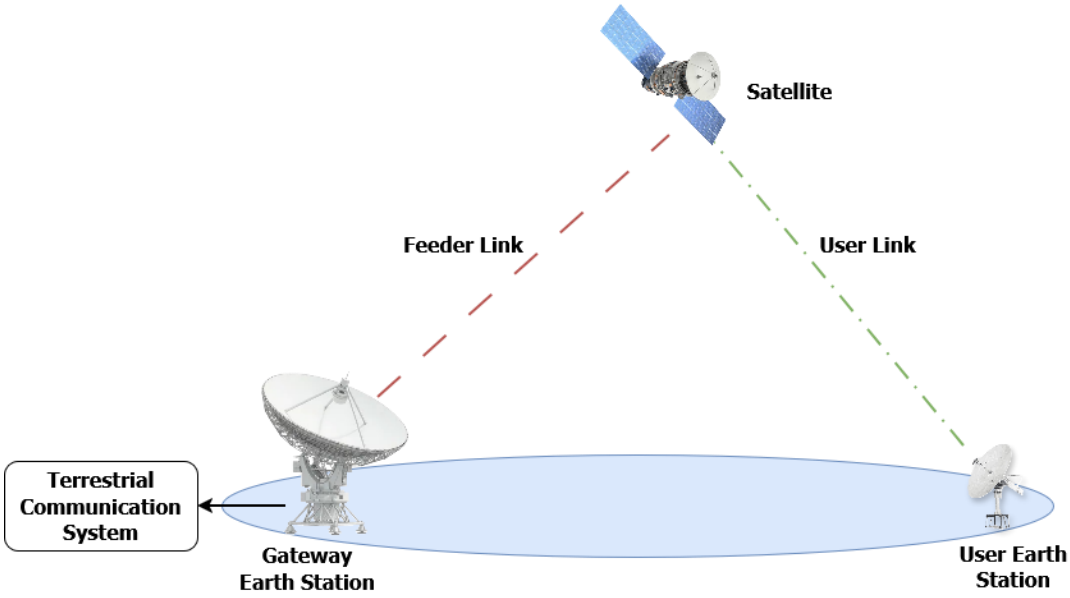

Figure 1.1: Key Elements of Satellite Communication Systems

1.9 The gateway earth station acts as the bridge linking the satellite communication network to the terrestrial communication network. It handles conversion, routing, and coordination of traffic between the satellite and terrestrial segments.

1.10 The trajectory of a satellite around Earth is known as orbit. The most common orbits followed by communication satellites are Low Earth Orbit (LEO), Medium Earth Orbit (MEO), and Geostationary Satellite Orbit (GSO). MEO and LEO satellites collectively are also called Non-Geo Stationary Orbit (NGSO) satellites.

1.11 GSO satellites are at about 36,000 kilometers above the Earth, a place where they appear fixed in the sky when observed from the ground. They are commonly used for communication, weather monitoring, Direct-To-Home (DTH) television broadcasting, and internet provisioning. NGSO satellites at

MEO altitudes are between 8,000 and 20,000 kilometers above the Earth and LEO altitudes are between 400 to 2,000 kilometers above the Earth. Since NGSO satellites move across the sky during their orbit around the Earth, NGSO operators deploy a fleet of satellites, generally called 'constellations', to provide continuous service from these altitudes. NGSO constellations intend to cover the globe providing high-bandwidth connectivity and processing high volumes of data with minimal delay. The following figure depicts the orbital altitudes and coverage areas of GSO and NGSO satellites.

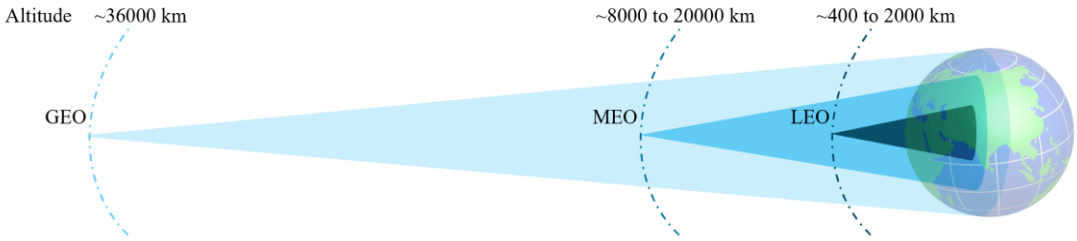

Figure 1.2: Schematic diagram of orbital altitudes and coverage areas of satellites

1.12 The ITU publication titled 'The Last-mile Internet Connectivity Solutions Guide Sustainable connectivity options for unconnected sites 2020', provides a comparison of GEO, MEO and LEO characteristics. Some of the characteristics are given in the following table:

Table 1.1: Characteristics of GEO, MEO and LEO Satellites[11]

Satellite category	Altitude	Orbital period	Latency (round-trip)	Number of satellites to span globe
GEO	35,786 km	24 hours	477 ms	3-4
MEO	8,000 to 20,000 km	127 minutes to 24 hours	27 to 477 ms	5 to 30
LEO	400 to 2,000 km	88 minutes to 127 minutes	2 to 27 ms	100s or 1000s

1.13 As GSO satellites are at geostationary location and at long distances from the Earth, the gateway earth stations of GSO satellites require a fixed antenna and stable communication link to maintain a constant connection with the satellite. In case of NGSO satellites, which are non-geostationary, the gateway earth stations require precise tracking, rapid beamforming, and effective interference management.

1.14 The conventional GSO satellites operate with a single wide beam spanning a large area (say entire Indian territory). Therefore, for conventional GSO satellites, a single gateway earth station can provide adequate coverage for a region. On the other hand, NGSO satellites operate through much narrower beams. For this reason, NGSO satellite systems need multiple beams to cover a geographical area as compared to a single wide beam of conventional GSO satellites. As a result, there may be a need to set up multiple gateway earth stations to control a large number of beams in case of NGSO satellite systems.

[11] Source: https://www.itu.int/dms_pub/itu-d/opb/tnd/D-TND-01-2020-PDF-E.pdf

1.15 Amongst satellite-based communication services, Fixed-Satellite Service (FSS) and Mobile-Satellite Service (MSS) are the most prominent services. ITU's Radio Regulations 2024[12] provide the following definitions of the terms 'FSS' and 'MSS':

"1.21 fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services."

"1.25 mobile-satellite service: A radiocommunication service: between mobile earth stations and one or more space stations, or between space stations used by this service; or between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation."

1.16 Simply put, FSS supports communications from one fixed-point to another fixed-point, such as VSAT, Teleports, etc. FSS is used for providing connectivity at fixed locations (like offices or remote sites).[13] MSS supports communications between mobile devices, such as satellite phones. MSS is used for providing connectivity to mobile platforms (like ships, planes, or handheld satellite phones).

[12] Source: https://www.itu.int/hub/publication/r-reg-rr-2024/

[13] As per the extant policy regime in India, user terminal stations on moving platforms are also permitted for provisioning of connectivity subject to compliance to relevant TEC standard(s) and conditions mentioned therein.
Source: Unified License Agreement

1.17 FSS and MSS rely on carefully allocated frequency bands, each chosen to balance coverage, capacity, and resilience against atmospheric effects. Lower frequency bands[14] such as L-band (1-2 GHz) and S-band (2- 4 GHz) are often favoured for providing MSS due to their better propagation characteristics. The higher frequency bands[15] such as C-band (4-8 GHz), Ku-band (10-15 GHz) and Ka-band (17-31 GHz) are often used for providing FSS; the higher bands enable high-capacity fixed services but face challenges like rain fade. According to European Space Agency[16], because of satellites' increased use, number and size, congestion has become a serious issue in the lower frequency bands. New technologies are being investigated so that higher bands can be used. The higher frequency bands typically give access to wider bandwidths.

D. Context for the Proposed Satellite Communication Network Authorisation

1.18 In December 2023, the Indian Parliament enacted 'the Telecommunications Act, 2023'[17]. Section 3 of the Telecommunications Act, 2023 empowers the Central Government to grant authorisations. Sub-section (1) and (2) of Section 3 are reproduced below:

"3 (1) Any person intending to—

(a) provide telecommunication services;

(b) establish, operate, maintain or expand telecommunication network; or

(c) possess radio equipment,

[14] Lower frequencies suffer less from atmospheric attenuation (rain fade, clouds, etc.), making them more reliable for mobile platforms.

[15] Higher frequencies support wider bandwidths, enabling faster data rates.

[16] Source: https://www.esa.int/Applications/Connectivity_and_Secure_Communications/Satellite_frequency_bands

[17] Source: https://egazette.gov.in/WriteReadData/2023/250880.pdf

shall obtain an authorisation from the Central Government, subject to such terms and conditions, including fees or charges, as may be prescribed.
(2) The Central Government may while making rules under sub-section (1) provide for different terms and conditions of authorisation for different types of telecommunication services, telecommunication network or radio equipment."

1.19 After the enactment of the Telecommunications Act, 2023, DoT sent two separate references under Section 11(1)(a) of the TRAI Act, 1997 for seeking recommendations of TRAI with respect to authorisations under the Telecommunications Act, 2023, as outlined below:

(a) Reference dated 21.06.2024: Through the reference dated 21.06.2024, DoT requested TRAI to provide recommendations on terms and conditions for authorisation to provide telecommunication services under Section 3(1)(a) of the Telecommunications Act, 2023.

(b) Reference dated 26.07.2024: Through the reference dated 26.07.2024 (**Annexure 1.1**) DoT requested TRAI to provide recommendations on terms and conditions for authorisation to establish, operate, maintain or expand telecommunication network under Section 3(1)(b) of the Telecommunications Act, 2023.

1.20 The relevant developments with respect to the afore-mentioned references are outlined in the following sub-sections.

(1) Developments w.r.t. the DoT's reference dated 21.06.2024

1.21 With respect to the DoT's reference dated 21.06.2024, TRAI issued a consultation paper dated 11.07.2024 for soliciting comments from stakeholders. After a comprehensive consultation with stakeholders, TRAI, on

18.09.2024, sent its recommendations on 'the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023'[18]. Through these recommendations, TRAI provided recommendations on a range of service authorisations including 'Satellite-based Telecommunication Service Authorisation'.

1.22 Subsequently, DoT, through its back-reference dated 14.01.2025 to the TRAI's recommendations dated 18.09.2024, informed, *inter-alia*, that *"[t]o enable technology neutral and future ready service authorisation regime, the Government is of the view that instead of having a separate authorisation for satellite-based telecommunication services, the use of satellite technology/ media may be permitted to each type of authorised entity under the Main Service Authorisations[19] category."*

1.23 TRAI, in its response dated 28.02.2025[20] to the DoT's back-reference dated 14.01.2025, informed that *"[c]onsidering the specialized nature of the satellite-based telecommunication services, to attract business entities to enter the relatively underdeveloped satellite-based telecommunication service segment in the country, and to promote and preserve the business focus of*

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[18] TRAI's recommendations dated 18.09.2024 on 'the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023' may be accessed at the following URL: https://trai.gov.in/sites/default/files/2024-11/Recommendation_18092024.pdf

[19] Through the recommendations on 'the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023', TRAI recommended, inter-alia, that the service authorisations to be granted under Section 3(1)(a) of the Telecommunications Act, 2023 should be organized in the following manner:
(a) Main service authorisations,
(b) Miscellaneous service authorisations,
(c) Captive service authorisations.
Under the Main Service Authorisations, TRAI proposed the following service authorisations:
Unified Service Authorisation, Access Service Authorisation, Internet Service Authorisation, Long Distance Service Authorisation, Satellite-Based Telecommunication Service Authorisation, and M2M WAN service authorisation.

[20] Response of TRAI to the Back-Reference dated 14.01.2025 on the Recommendations of TRAI on the 'Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023' may be accessed at the following URL: https://trai.gov.in/sites/default/files/2025-02/Recommendation_28022025.pdf

such entities, the Authority recommended a separate service authorisation for satellite-based telecommunication service in the country with reasonably light financial obligations including low entry fees." Based on its analysis, TRAI conveyed to DoT that it "*does not agree with the DoT's prima facie view regarding removal of separate service authorisations for Satellite-based Telecommunication Service and M2M WAN Service."*

1.24 Thereafter, DoT, on 05.09.2025, issued a draft[21] of the Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025 for public consultation. In the draft rules dated 05.09.2025, DoT did not propose to include the Satellite-based Telecommunication Service Authorisation under the main telecommunication services authorisation[22]. Instead, DoT proposed to include a chapter on "Specific Conditions for Provision of Telecommunication Services Using Satellite System"[23], the provisions of which would become applicable on any authorised entity providing telecommunication service using satellite networks including non-terrestrial networks and GMPCS networks.

(2) Developments w.r.t. the DoT's reference dated 26.07.2024

1.25 Through the reference dated 26.07.2024, DoT requested TRAI to provide recommendations on terms and conditions for the authorisation to establish, operate, maintain, or expand telecommunication network under Section 3(1)(b) of the Telecommunications Act, 2023. DoT suggested that while

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[21] Source: https://egazette.gov.in/(S(ybiekan4u1zm4xfa3n3zccne))/ViewPDF.aspx

[22] In the draft rules dated 05.09.2025, DoT has proposed that Main telecommunication services authorisation shall comprise of the following sub-categories: (a) unified service authorisation; (b) access service authorisation; (c) internet service authorisation; and (d) long distance service authorisation.

[23] Chapter 7 of the draft rules dated 05.09.2025

formulating recommendations, TRAI may also consider the recommendations of TRAI, under consideration of the Government, like recommendations on 'Licensing framework for establishing and operating Satellite Earth Station Gateway (SESG)' dated 29.11.2022[24] which primarily relates to establishing telecommunication networks under Section 3(1)(b) of the Telecommunications Act 2023, and would provide telecommunication network as a service to authorised entities under Section 3(1)(a) of the Telecommunications Act 2023 only.

1.26 Subsequently, through a supplementary reference dated 17.10.2024 (**Annexure 1.2**), DoT conveyed to TRAI that "*keeping in view the increasing use of NTN (Non terrestrial networks) including satellite communication networks in provisioning of FSS (Fixed Satellite Services) including VSAT services and MSS (Mobile Satellite Services), TRAI may consider an authorisation for satellite communication network under Section 3(1)(b) of the Telecommunications Act, 2023 alongwith the following:*

a. Terms and conditions relating to such authorisation

b. Provision of assignment of spectrum for both feeder link as well as user link under such authorisation

c. Service area of such authorisation."

1.27 In this regard, TRAI issued a consultation paper dated 22.10.2024 for soliciting comments from stakeholders. After a comprehensive consultation with stakeholders, TRAI provided its recommendations dated 17.02.2025[25] on 'the

[24] TRAI's recommendations on the 'Licensing framework for establishing and operating Satellite Earth Station Gateway (SESG)' dated 29.11.2022 may be accessed at the following URL: https://trai.gov.in/sites/default/files/2024-09/Recommendation_29112022.pdf

[25] Recommendations dated 17.02.2025: Recommendation of TRAI on the 'Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023' dated 17.02.2025 [URL: https://trai.gov.in/sites/default/files/2025-02/Recommendations_17022025.pdf]

Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023'. The relevant points of the recommendations dated 17.02.2025 are given below:

(a) TRAI recommended that the Central Government should introduce Satellite Earth Station Gateway (SESG) Provider Authorisation[26] under Section 3(1)(b) of the Telecommunications Act, 2023.

(b) TRAI expressed a view that "*at the principle level, authorised spectrum should be granted to service authorised entities only and not to network authorised entities."*

(c) About the satellite communication network authorisation suggested by DoT, TRAI conducted a detailed analysis and expressed its considered opinion that "*the permissible options for the delivery of satellite-based telecommunication services have been enabled through the Authority's recommendations dated 18.09.2024 in respect of Satellite-based Telecommunication Service authorisation and the present recommendations in respect of the SESG authorisation. Accordingly, the Authority is of the view that "there is no need for introducing any additional authorisation for satellite communication network under the Telecommunications Act, 2023, at this stage".*

[26] The salient recommendations of TRAI in respect of the SESG Provider Authorisation are given below:

(a) The Central Government should introduce Satellite Earth Station Gateway (SESG) Provider Authorisation under Section 3(1)(b) of the Telecommunications Act, 2023.

(b) Any entity intending to establish, operate, maintain, or expand satellite earth station gateway (SESG) in India should be required to obtain SESG Provider Authorisation from the Central Government.

(c) Broad scope of the SESG Provider Authorisation: To provide its SESG infrastructure to the entities which are authorised under Section 3(1)(a) of the Telecommunications Act, 2023 and which are permitted to use satellite media under their scope of service

(d) The baseband equipment to be installed at SESGs should be owned by the eligible service authorised entity interworking with the SESG Provider authorised entity. However, the SESG Provider authorised entity should be permitted to install the baseband equipment at its SESGs on behalf of the eligible service authorised entities.

(e) The satellite spectrum (gateway-side spectrum as well as user-side spectrum) should be assigned only to the eligible service authorised entities and not to SESG Provider authorised entities. However, for configuration and provisioning purposes, the SESG Provider authorised entity should be permitted to utilize the spectrum of its partnering service authorised entity on its SESGs. Such configuration and provisioning should be done on behalf of the partnering service authorised entity, and the right to use of spectrum should remain with the partnering service authorised entity.

1.28 Subsequently, DoT, through its back-reference dated 03.07.2025 to the TRAI's recommendations dated 17.02.2025, informed, *inter-alia*, as below:

"4.2 …It is pertinent to note here that the Government has not accepted the TRAI's recommendations on the Satellite-based Telecommunication Service Authorisation. Therefore, the primary basis on which TRAI concluded that there is no need to introduce an additional authorisation for satellite communication networks under Section 3(1)(b) of the Telecommunications Act, 2023, is no longer valid. Further, SCN authorisation under section 3(1)(b) will enable the relevant authorised entities under Section 3(1)(a), in mutual commercial agreement with the SCN authorised entities, to provide supplemental coverage from space using Mobile Satellite Service (MSS) spectrum bands to the users in areas with limited or no terrestrial coverage.

…

Absence of such SCN authorisation would either leave a gap in the regulatory framework for provisioning of telecommunication services in areas uncovered through terrestrial network or it would require each authorised entity, providing Unified service or Access service, and intending to provide supplemental coverage services, to obtain the assignment of MSS spectrum separately and establish parallel networks. Such duplicity would be capex and opex inefficient.

…

4.6 Further, the Telecommunications Act, 2023 does not restrict spectrum assignment solely to entities under Section 3(1)(a), and limiting it as such may constrain future policy flexibility. Allowing the flexibility of obtaining spectrum by authorised entity either under 3(1)(a) or 3(1)(b) (Service or Network) will enable regulatory framework to meet the requirement of future network and evolving technology in this space.

4.7 Therefore, the views of TRAI in respect of SCN authorisation and spectrum assignment to entities authorised under Section 3(1)(b), as stated above, need modification.

4.8 Hence, to avoid the regulatory gap - given that the Government has not accepted the Satellite-based Telecommunication Service Authorisation under Section 3(1)(a) - the Government proposes the introduction of a Satellite Communication Network (SCN) Authorisation under Section 3(1)(b) and requests TRAI to provide terms and conditions for Satellite Communication Network (SCN) authorisation including provision of assignment of spectrum for both feeder link as well as user link under such authorisation."

1.29 TRAI, in its response dated 13.08.2025[27] to the DoT's back-reference dated 03.07.2025, expressed "*its concern on the non-acceptance of its recommendations on the Satellite-based Telecommunication Service Authorisation*." TRAI also stated that "*as the Government has not accepted the TRAI's recommendations on the Satellite-based Telecommunication Service Authorisation, a regulatory gap would indeed be created in the ecosystem for satellite communications in the country."* With respect to the satellite communication network authorisation suggested by DoT, TRAI conveyed to DoT as below:

"2.131.7 In this regard, the Authority has decided to initiate a fresh process of consultation with stakeholders to solicit views on terms and conditions for Satellite Communication Network (SCN) authorisation, including the provision of assignment of spectrum for both feeder link as well as user link under such authorisation. Upon the conclusion of the consultation process, the Authority would provide its recommendations on the matter to the Government.

[27] Response dated 13.08.2025: Response of TRAI to the Back-Reference dated 03.07.2025 on the Recommendations of TRAI on the 'Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023' [URL: https://trai.gov.in/sites/default/files/2025-07/TRAI_Response_04072025.pdf]

2.131.8 In case upon the conclusion of the consultation process, the Authority recommends that the spectrum for feeder link and/ or user link should be assigned under SCN Authorisation, the Government may thereafter, if deemed fit, seek the recommendations of the Authority on the terms and conditions for the assignment of spectrum under SCN Authorisation."

1.30 Subsequently, DoT, through a letter dated 29.08.2025 (**Annexure 1.3**), requested TRAI to provide recommendations on the terms and conditions of the proposed Satellite Communication Network (SCN) authorisation, alongwith terms and conditions relating to the assignment of spectrum in a consolidated form, covering all aspects at once.

1.31 In this regard, TRAI through a letter dated 22.09.2025 requested DoT to clarify as to whether the assignment of spectrum to 'Satellite Communication Network' is covered under the First Schedule of the Telecommunications Act, 2023; and provide information on frequency bands in which spectrum is envisaged to be assigned to the entities holding the proposed SCN authorisation.

1.32 In response, DoT through a letter dated 07.10.2025[28] **(Annexure 1.4)**, provided its clarification on the relevant aspects. An extract from the DoT's letter dated 07.10.2025 is given below:

"2. … it is submitted that, the First Schedule of The Telecommunications Act, 2023, is a list of entries based on use of the spectrum. Where the use of the spectrum is covered within the scope of an entry in the First Schedule, the assignment of such spectrum may be undertaken by administrative process.

[28] Letter dated 07.10.2025: DoT's clarification letter to a letter from TRAI seeking clarification with respect to the Reference dated 29.08.2025.

2.1 An entity holding a SCN (Satellite Communication Network) authorisation seeks assignment of spectrum for use that falls within the scope of any of the entries of the First Schedule, it can be assigned spectrum through administrative method. Accordingly, an SCN Authorised Entity seeking to use spectrum for In-flight Maritime Connectivity, may apply for administrative assignment under Entry 14 of the First Schedule. An SCN Authorised Entity seeking to use spectrum for the satellite-based services under Entry 16, such as Very Small Aperture Terminal, Global Mobile Personal Communication by Satellites, National Long Distance, International Long Distance, Mobile Satellite Services in L & S bands, can apply for spectrum assignment under Entry 16.

2.2 It may also be possible that a SCN Authorised Entity without seeking spectrum may enter into sharing agreements with another authorised entity availing of its satellite network (the "partnering entity"), to utilise the spectrum assigned to such partnering entity for the limited purpose of providing the service of its satellite-based networks.

3. … at present, spectrum assignments for different kind of telecommunication services are being made in the L, C, Ku and Ka bands. Also, based on the TRAI recommendations dated 09.05.2025, other frequency bands i.e. Q-band and V-band are also being considered for different kind of Telecommunications Services."

E. The Present Consultation Paper

1.33 In this context, the present consultation paper has been prepared to solicit comments from stakeholders on 'the Framework for Satellite Communication Network Authorisation, and Assignment of Spectrum to Satellite Communication Network Providers'. Chapter I provides the background information. Chapter II examines the issues related to the proposed Satellite

Communication Network (SCN) Authorisation framework and assignment of spectrum. Chapter III examines the financial conditions of the proposed SCN Authorisation, and spectrum charges. Chapter IV summarizes the issues for consultation.

CHAPTER II: EXAMINATION OF ISSUES RELATED TO AUTHORISATION FRAMEWORK AND ASSIGNMENT OF SPECTRUM

2.1 This chapter begins with a brief description of the evolution of the policy and regulatory framework for telecommunication services, in general and satellite-based telecommunication services, in particular. Thereafter, the chapter examines the issues related to the terms and conditions of the proposed satellite communication network authorisation and provision of assignment of spectrum under such authorisation.

A. Evolution of the telecom policy and regulatory framework

2.2 In India, the first telegraph[29] was installed in 1851 under the British rule. Three decades later, in 1881, the telephone was introduced in India. In 1885, the Imperial Legislative Council enacted a legislation on telecommunications namely the Indian Telegraph Act, 1885. The Indian Telegraph Act, 1885 accorded to the Central Government an exclusive privilege of establishing, maintaining, and working telegraph in India. The Indian Telegraph Act, 1885 also empowered the Central Government to grant a license to any person to establish, maintain or work a telegraph within any part of India[30].

[29] "telegraph" means any appliance, instrument, material or apparatus used or capable of use for transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, visual or other electro-magnetic emissions, Radio waves or Hertzian waves, galvanic, electric or magnetic means.
Source: Indian Telegraph Act,1885

[30] A relevant extract from the Indian Telegraph Act, 1885 is reproduced below:
"4. Exclusive privilege in respect of telegraphs, and power to grant licenses.— (1) Within India, the Central Government shall have the exclusive privilege of establishing, maintaining and working telegraphs:
Provided that the Central Government may grant a license, on such conditions and in consideration of such payments as it thinks fit, to any person to establish, maintain or work a telegraph within any part of India: …"

2.3 At the time of independence, all foreign telecommunication companies were nationalised.[31] From 1947 to early 1990s, the Indian telecom sector remained a state monopoly.[32] In July 1992, the Government of India announced the opening of the sub-sector of value-added services to private investment for eight services viz. Electronic Mail, Voice Mail, Data Services, Audio Text Services, Video Text Services, Video Conferencing, Radio Paging, and Cellular Mobile Telephone. In May 1994, the Government of India announced National Telecom Policy (NTP) 1994 with an objective of "*telecommunication for all and telecommunication within the reach of all*". NTP 1994 marked a pivotal step in India's telecommunications reform, laying the groundwork for subsequent liberalization and rapid sectoral growth. Among many other services, Very Small Aperture Terminal (VSAT) Service was opened to private sector under NTP 1994. VSAT Service started being licensed as a value-added service in 1994 to VSAT Service Providers for serving Closed User Groups (CUGs).[33]

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[31] With the nationalization of telecommunication companies, the Government created the Posts and Telegraphs Department, a state-run monopoly.

[32] The 1980s witnessed the first attempts at restructuring of the administration and operation of telecommunications in the country. In 1984, the Posts & Telegraphs Department was bifurcated into two separate Departments, viz., the Department of Posts (DoP) and the Department of Telecommunications (DoT). In 1986, Videsh Sanchar Nigam Limited (VSNL) and Mahanagar Telephone Nigam Limited (MTNL) were incorporated as public sector enterprises wholly owned by the Government under the DoT. MTNL was established to provide telecommunication services in Delhi and Mumbai, and VSNL was established to provide all international telecommunication services.

[33] Very Small Aperture Terminals (VSATs) could be described as earth stations that share satellite resources among a large number of similar terminals. Individual VSAT terminals typically have small aperture sizes, transmit at relatively low equivalent isotropically radiated power (e.i.r.p.) levels, and use relatively small equipment that allows flexible installation of a satellite network earth station directly at a wide variety of user locations and platforms.
Source: https://www.itu.int/dms_pub/itu-r/opb/rep/r-rep-s.2278-2013-pdf-e.pdf

Very Small Aperture Terminal (VSAT) is one of the satellite communication technologies, which is very useful for remote and inaccessible locations (rural areas, ships, coastal regions, hills, etc) where there is limited or no terrestrial connectivity. The main advantages of VSAT technology are its rapid deployment with minimum training, scalability, lower operational costs, and reliability of communication, in remote locations even in adverse situations.
Source: https://eservices.dot.gov.in/satellite-telecom-network-captive-vsat

The VSAT network comprises of a space segment and a ground segment, which is accessed by the end users. The space segment consists of transponder space in satellites. The ground segment consists of earth stations, hub, control centre, and

2.4 In March 1997, by an Act of the Parliament namely, the Telecom Regulatory Authority of India Act, 1997, the Telcom Regulatory Authority of India (TRAI) was established to regulate the telecommunications services in the country. Through the Act, TRAI was given a range of regulatory and recommendatory functions apart from the function of settling disputes between service providers.[34]

2.5 In March 1999, the Government of India announced a new policy framework named 'New Telecom Policy 1999'. It stated that the new policy framework must focus on creating an environment to enable continued attraction of investment in the sector and allow creation of communication infrastructure by leveraging on technological development; towards this end, the new policy framework would look at the telecom services sector as follows:

(a) Cellular Mobile Service Providers (CMSPs), Fixed Service Providers (FSPs) and Cable Service Providers, collectively referred to as' Access Providers'
(b) Radio Paging Service Providers
(c) Public Mobile Radio Trunking Services (PMRTS) Providers
(d) National Long Distance Operators (NLDOs)

VSATs of the group of end users. The VSATs may, depending upon technology choice, connect into a hub station or connect with each other in a mesh pattern. The hub station is linked to the satellite transponder as a nodal mechanism.
Source: https://trai.gov.in/sites/default/files/2024-09/28_1_0.pdf

Closed User Group (CUG): VSAT CUG license enables private communication networks using VSATs for companies with widespread locations, like banks, schools, and retail chains.
Source: https://preprodeservices.dot.gov.in/commercial-vsat-cug

[34] In March 2000, the Indian Parliament amended the TRAI Act. The salient features of the amendment are as below:
(a) Establishment of the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) for adjudicating disputes between licensor and licensees, between two or more service providers, and between a service provider and a group of consumers, and to hear and decide appeals against any direction, decision or order of TRAI under the Act
(b) Introduction of a clear distinction between the regulatory functions and recommendatory functions of TRAI
(c) Making it mandatory for the Central Government to seek TRAI9s recommendations with respect to the need and timing for introduction of a new service provider and the terms and conditions of license to a service provider
(d) Inclusion of the regulatory function of laying down the standard of quality of service to be provided by the service providers and ensuring quality of service
(e) Inclusion of the regulatory function of fixing the terms and conditions of interconnectivity between the service providers
(f) Inclusion of the recommendatory function on efficient management of available spectrum.

(e) International Long Distance Operators (ILDOs)

(f) Other Service Providers

(g) Global Mobile Personal Communication by Satellite (GMPCS) Service Providers

(h) V-SAT Based Service Providers

2.6 The first five telecom service providers, included in the new policy framework of NTP 1999, were related to terrestrial telecommunication services[35]. The remaining two service providers viz. GMPCS Service Providers and V-SAT Based Service Providers were related to satellite-based telecommunication services[36]. In NTP 1999, the Government expressed, *inter-alia*, as below with respect to satellite-based telecommunication services:

(a) The Government has opened the GMPCS market in India and has issued a provisional license.[37] GMPCS Service Providers shall be free to provide voice and non-voice messages, data service and information services. The terms of the final license would need to be finalized in consultation with TRAI. The appropriate entry fee/ revenue sharing structure would be recommended by TRAI.

(b) VSAT Service Providers will be granted a separate license on a non-exclusive basis for an initial period of 20 years. They would be required to pay a one-time entry fee and licence fee based on a revenue share. The appropriate level of entry fee and percentage of revenue share arrangement would be recommended by TRAI.

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[35] The term "terrestrial telecommunication services" means the telecommunication services provided by using telecommunication networks that operate on or near the Earth's surface, relying on land-based infrastructure to transmit and receive signals.

[36] The term "satellite-based telecommunication services" means the telecommunication services provided by using artificial satellites to transmit and receive signals.

[37] The first license for GMPCS was issued in October 1998 to M/s Iridium India Telecom Limited provisionally on a non-exclusive basis. Iridium commissioned its GMPCS service in India in February 1999.

2.7 Through NTP 1999, the Government also recognized the need for Universal Service Obligation (USO) in telecom services sector and stated that "*[t]he resources for meeting the USO would be raised through a 'universal access levy' which would be a percentage of the revenue earned by all the operators under various licences. The percentage of revenue share towards universal access levy would be decided by the Government in consultation with TRAI.*"[38]

2.8 After the announcement of NTP 1999, DoT sent a reference to TRAI for seeking recommendations on the quantum and structure of License Fee and other terms and conditions of license agreement for the provision of GMPCS service. In this regard, TRAI, on 15.11.1999, sent its recommendations on License Fee and Terms & Conditions of the License Agreement for GMPCS Service[39] to DoT. The salient recommendations were as below:

(a) The Entry Fee for GMPCS Service should be Rs. 10 million.

(b) The GMPCS Service Licensee shall be required to commission its Applicable systems and provide GMPCS Service within a period of one year of the effective date of the License Agreement.

(c) Revenue share as annual license fee under the GMPCS Service License should not exceed 5% of the Adjusted Gross Revenue (AGR).

(d) The GMPCS Service License shall be issued for an initial period of 20 years and would be extendable by additional period of 10 years thereafter.

[38] Source: https://trai.gov.in/sites/default/files/2024-10/New_Telecom_Policy%201999.pdf

[39] TRAI's recommendations dated 05.09.2022 may be accessed at the following URL: https://trai.gov.in/sites/default/files/2024-09/RecommendationGMPCS15111999.pdf

2.9 In its response to DoT's back-reference on TRAI's recommendations dated 15.11.1999, TRAI recommended the following definition of GMPCS Service Provider:

"GMPCS Service Provider means an Indian registered Company that has been licensed under the license to set up and operate Gateways, network operations and other terrestrial facilities to provide the GMPCS service (as defined by ITU[40]) to the public within the boundaries of Indian Union."

2.10 Based on the afore-mentioned recommendations, DoT, in 2001, finalized the GMPCS policy and issued detailed guidelines and license agreement for the provision of satellite telephone service in the country.

2.11 In May 1999, DoT sought recommendations on issue of fresh licenses for VSAT Service Providers under NTP 1999. In this regard, TRAI, on 18.10.2000, sent its recommendations on Fresh Licenses for VSAT Service[41] to DoT. The salient recommendations were as below:

(a) Entry Fee for VSAT license should be Rs. 3 million.

(b) There should be a minimum roll out obligation on VSAT licensee to deploy five VSAT terminals along with the hub within one year of the grant of license.

(c) License fee should be charged on the basis of per VSAT rather than as a revenue share.

License Fee for VSAT service for 64 kbps:

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[40] As per ITU, *"GMPCS is a personal communication system providing transnational, regional or global coverage from a constellation of satellites accessible with small and easily transportable terminals. Whether the GMPCS satellite systems are geostationary or non-geostationary, fixed or mobile, broadband or narrowband, global or regional, they are capable of providing telecommunication services directly to end users. GMPCS services include two-way voice, fax, messaging, data and even broadband multimedia".*
Source: https://www.itu.int/en/gmpcs/Pages/default.aspx

[41] TRAI's recommendations dated 18.10.2000 may be accessed at the following URL:
https://trai.gov.in/sites/default/files/2024-09/RecommendationGMPCS15111999.pdf

(i) 1 to 500 VSATs: Rs. 20,000 per VSAT per annum

(ii) 501 to 1,000 VSATs: Rs. 15,000 per VSAT per annum

(iii) Above 1,000 VSATs: Rs. 10,000 per VSAT per annum

Surcharge on the license fee leviable per VSAT per annum:

(i) Above 64 kbps and upto 128 kbps: Rs. 10,000

(ii) Above 128 Kbps and upto 384 Kbps: Rs. 20,000

(iii) Above 384 Kbps and up to 512 Kbps: Rs. 50,000.

2.12 Based on TRAI's recommendations dated 18.10.2000, DoT granted licenses to applicants to establish, install, operate and maintain VSAT Closed Users Group (CUG) Domestic Data Network service via INSAT Satellite System on non-exclusive basis within territorial boundary of India. CUG VSAT licenses were of two types viz. (a) Commercial CUG VSAT license, and (b) Captive CUG VSAT license. A commercial CUG VSAT service licensee could offer the service on commercial basis to its subscribers by setting up a number of CUGs. A captive CUG VSAT licensee could setup only one CUG for its captive use.

2.13 In pursuance of the objectives of NTP 1999, DoT, through its letters dated 21.05.1999 and 13.10.1999 sought TRAI's recommendations on, *inter-alia*, the class of operators to fund the Universal Access Levy (UAL) and percentage contribution from revenue of the operators. In this regard, TRAI, on 03.10.2001, sent its recommendations on Universal Service Obligations. TRAI recommended a Universal Service Levy (USL) amounting to 5% of the Adjusted Gross Revenue (AGR) of all telecom carriers or operators such as Basic Service Operators (BSOs), National Long Distance Operators (NLDOs), International Long Distance Operators (ILDOs), Cellular Mobile Service

Providers (CMSPs) etc.[42] After considering TRAI's recommendations dated 03.10.2001, Universal Service Obligation Fund (USOF) was established through the Indian Telegraph (Amendment) Act, 2003[43]. The USO Levy amounting to 5% of AGR was included in the License Fee.

2.14 Based on a request from DoT for providing recommendations on the terms and conditions for the INSAT MSS (Mobile Satellite System) Reporting Service, TRAI, on 19.11.2001, sent its recommendations on INSAT MSS Reporting Service[44]. INSAT MSS Reporting Service is a one-way (transmit only) satellite-based messaging service available through INSAT. Through the recommendations dated 19.11.2001, TRAI recommended, *inter-alia*, as below:

(a) INSAT MSS Reporting Service may be treated as a new service under the broad definition of 'Value Added Service', considering the type of communication, frequency spectrum, configuration of hub station equipment and handset.

(b) As the service is new and the market is likely to take some time to pick up, no entry fee be charged for this service and the license fee be kept as 5% of the Adjusted Gross Revenue, which shall go towards the USO.

(c) To exclude non-serious players, a bank guarantee of Rs 2 lakh be charged from the service provider to be encashed in case he fails to start the service within six months of award of license.

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[42] Through the recommendations dated 03.10.2001, TRAI also recommended that "*[n]o levy should be charged from pure value added service providers such as ISPs, E-mail, Voice Mail service providers etc., who do not own facilities and thus are not in the category of network operators and carriers.*"

[43] The amendment Act was deemed to have come into force on 01.04.2002.

[44] TRAI's recommendations dated 19.11.2001 may be accessed at the following URL: https://trai.gov.in/sites/default/files/2024-09/RecomendationINSATMSS19112001.pdf

2.15 Based on the recommendations dated 19.11.2001, DoT introduced the INSAT MSS-R License in the year 2002.

2.16 On 13.01.2005, TRAI sent its *suo motu* recommendations on Unified Licensing. TRAI recommended that "*Unified Licensing Regime should be introduced in India. This is also in line with the prevalent international practices, which is to move towards simplified Authorisation/ Converged licenses. Unified Licensing regime would enable the provision of various services, both existing and new, by the service providers without the need for separate additional licenses, with the same media being used for different services which would build economies of scale and scope. As a result, better services would be made available to the consumers at cheaper price.*" TRAI also recommended a telecom service licensing framework as below:

"There shall be four categories of licenses:

- *Unified License - All Public networks including switched networks irrespective of media and technology capable of offering voice and/ or non-voice (data services) including Internet Telephony, Cable Television (TV), Direct To Home (DTH), TV & Radio Broadcasting shall be covered under this category. Unified License implies that a customer can get all types of telecom services, from a Unified License Operator. The operator can use wireline or wireless media.*
- *Class License - All services including satellite services, which do not have both way connectivity with Public Network, shall be covered under Class license. This category excludes Radio Paging and Public Mobile Radio Trunking Systems (PMRTS) Services and includes Niche Operators.*
- *Licensing through Authorisation - This category will cover the services for provision of passive infrastructure and bandwidth services to service provider(s), Radio Paging, PMRTS, Voice Mail, Audiotex, Video Conferencing, Videotex, E-mail service, Unified Messaging Services,*

Tele-banking, Tele-medicine, Tele-education, Tele-trading, E-commerce, Other Service Providers, as mentioned in NTP'99 and Internet Services including existing restricted Internet Telephony (Personal Computers (PC) to PC; within or outside India, PC in India to Telephone outside India, IP based H.323/SIP Terminals connected directly to ISP nodes to similar Terminals; within or outside India), but not Internet Telephony in general.

- *Standalone Broadcasting and Cable TV licence – This category shall cover those service providers who wish to offer only broadcasting and/or cable services."*

2.17 Based on a request from DoT to provide recommendations on allocation of access spectrum and pricing, TRAI, through its recommendations on Spectrum Management and Licensing Framework dated 11.05.2010, recommended that "*[a]ll future licences should be unified licences and that spectrum be delinked from the licence."* In this regard, the Ministry of Communications, Government of India, on 15.02.2012, issued a press statement and conveyed the decisions taken by DoT after considering TRAI's recommendations dated 11.05.2010. A relevant extract from the press statement dated 15.02.2012 is given below:

"All future licences will be Unified Licences and allocation of spectrum will be delinked from the licence. Spectrum, if required, will have to be obtained separately.

A final view on implementation of the Unified License Regime would be taken after receipt of detailed Guidelines and Terms & Conditions from TRAI for Unified Licence including migration path for all existing licence(s) to Unified Licence.

There will be uniform licence fee across all telecom licenses and service areas which will progressively be made equal to 8% of the Adjusted Gross Revenue (AGR) in two yearly steps starting from 2012-13."

2.18 Meanwhile, DoT, through its letter dated 10.11.2011, requested TRAI to recommend the Unified Licence guidelines including recommendations on entry/ eligibility, PBG, FBG etc. In this regard, TRAI, on 16.04.2012, sent its recommendations on Guidelines for Unified Licence/ Class Licence and Migration of Existing Licences to DoT. The salient features of the recommendations were as below:

(a) Unified License: Under Unified License, a licensee may provide access service, internet service, NLD, ILD, PMRTS, radio paging, voice mail, Audiotex, Videotex, Unified Messaging Service, resale of International Private Leased Circuit (IPLC) and GMPCS service. A Unified License holder may offer any/ all services covered under 'Class License' and 'Licensing through authorisation' but not *vice versa*.

(b) Class License: VSAT service and INSAT-MSS service will be covered under Class License.

(c) Licensing through authorisation: Licensee shall be permitted to offer Voice Mail Service, Audiotex, Videotex, Unified Messaging Service and other value-added services within its licence area using the network of Unified Licensee on mutually agreed terms and conditions. The Licensee shall be permitted to install dark fibers, duct space and towers, subject to the condition that these shall not be used for activities relating to commercial telecom services.

2.19 On 31.05.2012, the Government of India announced a new policy framework named 'National Telecom Policy (NTP) 2012'. One of the objectives of NTP

2012 was "Strive to create *One nation - One license*" across services and service areas.

2.20 After considering TRAI's recommendations dated 16.04.2012, DoT, in 2013, introduced the Unified Licensing regime. Under Unified Licensing regime, an applicant could apply for Unified License alongwith authorisations for one or more services listed under Unified License. In effect, the Unified Licensing regime allowed any eligible entity to provide multiple services — such as access services, internet service, national long-distance (NLD) service, international long-distance (ILD) service etc. — under one consolidated license, instead of holding separate licenses for each service. Notably, when an entity obtained a Unified License, it did not automatically get authorization for all telecommunication services listed under it. Instead, the Unified License acted as a framework license within which, the operators could seek separate authorizations for each service they want to provide.

2.21 As far as satellite-based telecommunication services are concerned, not only GMPCS service, but also commercial CUG VSAT service, and INSAT MSS-R service were brought under the Unified License regime.[45] Besides, Chapter-V (Operating Conditions) of the Unified License contained the following provision on the use of satellite media:

30.11 In case of provision of services by the LICENSEE through the Satellite media or use of satellite media through owned/leased satellite connectivity:-

[45] The captive CUG VSAT services continued to be provided under the standalone Captive VSAT CUG license.

(i) The Licensee shall abide by the prevalent Government guidelines, policy, orders, regulation or direction on the subject like Satellite communication policy, VSAT policy etc.

(ii) Before putting in operation the network for Satellite based services, necessary clearances from INSAT Network Operations Control Center (NOCC) on payment of prescribed charges will be taken by the Licensee. NOCC instructions with regard to space segment access and other relevant operational matters will have to be complied by the Licensee.

(iii) For use of space segment and setting up and to start operating the Earth Station etc., Licensee shall directly coordinate with and obtain clearance from Network Operations Control Centre (NOCC), apart from obtaining SACFA clearance and clearance from other authorities.

(iv) Mandatory performance verification of HUB Station will be carried out by NOCC or any other agency authorized by the Authority for this purpose on payment of necessary testing charges by Licensee.

(v) For VSATs supplied or leased by the Licensee, a certificate from the LICENSEE duly supported by the manufacturer certificate meeting the mandatory performance requirements shall be submitted by the LICENSEE to NOCC. Mandatory performance verification of VSATs will be carried out by NOCC on selective basis on payment of necessary testing charges by Licensee.

(vi) The Licensee shall submit a monthly operational report to NOCC/Satellite cell in DoT in both soft copy and hard copy."

2.22 On 10.08.2017, DoT sent a reference to TRAI for seeking recommendations on licensing terms and conditions for the provision of In-Flight Connectivity for voice, data, and video services. In response, TRAI sent its recommendations dated 18.01.2018 on In-Flight Connectivity (IFC)[46] to DoT.

[46] The recommendations dated 18.01.2018 on In-Flight Connectivity (IFC) may be accessed at the following URL:

Through the recommendations dated 18.01.2018, TRAI recommended, *inter-alia*, as below:

(a) Both, Internet, and Mobile Communication on Aircraft (MCA) service should be permitted as In-Flight Connectivity (IFC) in the Indian airspace.

(b) A separate category of "IFC Service Provider" should be created to permit IFC services in Indian airspace for airlines registered in India.

(c) An IFC service provider should be permitted to provide IFC services, after entering into an arrangement with Unified Licensee having appropriate authorization.

(d) To promote the adoption of IFC services in Indian airspace, the IFC service provider should be imposed a flat annual Licence Fee of token amount of Rs. 1.

2.23 After considering TRAI's recommendations dated 18.01.2018 on In-Flight Connectivity, DoT issued the Flight and Maritime Connectivity Rules, 2018 dated 14.12.2018. Through the rules dated 14.12.2018, DoT notified rules for the authorisation to provide "In Flight and Maritime Connectivity (IFMC) service". As per the rules, the IFMC service provider, shall establish, maintain, and work telegraph to provide wireless voice or data or both type of telegraph messages on ships within Indian territorial waters and on aircraft within or above India or Indian territorial waters.[47]

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https://trai.gov.in/sites/default/files/2024-09/Recommendation_IFC_19012018.pdf

[47] The eligibility conditions for obtaining the authorisation of IFMC service is as below:
Eligibility.–
(1) A licensee shall be eligible to apply for authorisation to provide IFMC service if it –
(a) holds a license for access service or an ISP category A license; and
(b) holds an NLD license or a commercial VSAT CUG service license, and has satellite gateway earth station within the service area of the license as specified in clause (a), in case connectivity through satellite is used.
(2) The following companies shall also be eligible to apply for authorisation to provide IFMC service by entering into commercial agreements as referred to in sub-rule (5) and (6), namely:-
(a) any Indian airlines company or foreign airlines company having permission to enter Indian airspace by the Directorate General of Civil Aviation;

2.24 Meanwhile, the Government of India issued a new policy framework named 'National Digital Communication Policy (NDCP) 2018'. With respect to satellite communications, NDCP 2018 has the following strategy under its Connect India Mission:

"1.3 Strengthening Satellite Communication Technologies in India

(a) Review the regulatory regime for satellite communication technologies, including: Revising licensing and regulatory conditions that limit the use of satellite communications, such as speed barriers, band allocation, etc.

i. Simplifying compliance requirements for VSAT operators to ensure faster roll out

ii. Expanding scope of permissible services for the effective utilisation of High Throughput Satellite systems through appropriate licensing mechanism.

(b) Optimise Satellite communications technologies in India, by:

i. Reviewing SATCOM policy for communication services, along with Department of Space, to create a flexible, technology-neutral and competitive regime, keeping in view international developments and social and economic needs of the country

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(b) any Indian shipping company or foreign shipping company whose vessels or ships call Indian ports or transit Indian territorial waters and intend to carry out communication for non-GMDSS (Global Maritime Distress and Safety System) [routine] or for commercial purpose; and
(c) any company incorporated under the Companies Act, 2013 (18 of 2013) or under any previous company law.
(3) A licensee referred to in sub-rule (1), may provide voice or data or both services in accordance with the scope of the license, held by it.
(4) Data service may be provided by the IFMC service provider through Wi-Fi.
(5) For providing data service, the companies referred to in sub-rule (2), shall enter into a commercial agreement with at least one licensee of – (a) access service or ISP category A; and (b) commercial VSAT CUG service or NLD service, having satellite gateway earth station within the service area of partnering licensee as referred to in clause (a), in case connectivity through satellite is used.
(6) For providing voice and data service, the companies referred to in sub-rule (2), shall enter into a commercial agreement with at least one licensee of – (a) access service; and (b) commercial VSAT CUG service or NLD service, having satellite gateway earth station within the service area of partnering licensee of access service, in case connectivity through satellite is used.
Source: https://eservices.dot.gov.in/sites/default/files/circular-notifications/IFMC%2014.12.2018.pdf

ii. Making available new spectrum bands (such as Ka Band) for satellite based commercial communication services.

iii. Rationalizing satellite transponder, spectrum charges and charges payable to WPC

iv. Assessing the bandwidth demands across various spectrum bands used for satellite communications, in consultation with stakeholders

v. Prioritising international engagement with ITU on spectrum management issues, including satellite communications in India.

(c) Develop an ecosystem for satellite communications in India, with focus on:

i. Streamlining administrative processes for assignment and allocations, clearances and permissions related to satellite communication systems

ii. Promoting local manufacturing and development of satellite communications related infrastructure through appropriate policies

iii. Promoting participation of private players, with due regard to national security and sovereignty."

2.25 Based on the DoT's reference dated 13.08.2019, TRAI, on 28.07.2020, sent its recommendations on 'Provision of Cellular Backhaul Connectivity via Satellite Through VSAT Under Commercial VSAT CUG Service Authorization'[48] to DoT. Through these recommendations, TRAI recommended, *inter-alia*, that the Commercial VSAT CUG Service provider should be permitted to provide backhaul connectivity for cellular mobile services through satellite using VSAT

[48] The recommendations dated 28.07.2020 on 'Provision of Cellular Backhaul Connectivity via Satellite Through VSAT Under Commercial VSAT CUG Service Authorization' may be accessed at the following URL: https://trai.gov.in/sites/default/files/2024-09/Recommendations_28072020.pdf

to the Access Service providers; they may also be permitted to provide backhaul connectivity using VSAT to Access Service Providers for establishing Wi-Fi hotspots.

2.26 Based on the DoT's reference dated 23.11.2020, TRAI, on 26.08.2021, sent its recommendations on Licensing Framework for Satellite-based connectivity for Low Bit Rate Applications[49]. Through the recommendations dated 26.08.2021, TRAI recommended, *inter-alia*, as below:

(a) The GMPCS service authorization under Unified License permits the licensee to provide voice and non-voice messages and data services. Under the scope of data services, the licensee may provide satellite-based data connectivity to the SIM-based IoT/ Aggregator devices. Scope of GMPCS service authorization under Unified License may be suitably amended to include provision of satellite-based low-bit-rate connectivity for IoT devices.

(b) The Commercial VSAT CUG service authorization under Unified License permits the licensee to provide data connectivity between various sites scattered within territorial boundary of India. Under the scope, the licensee may be permitted to provide data connectivity for IoT devices also through satellite. Scope of Commercial VSAT CUG service authorization under Unified License may be suitably amended to include provision of satellite-based low bit-rate connectivity for IoT devices.

(c) The scope of the Captive VSAT CUG service license is to provide data connectivity between various sites scattered throughout India using Very Small Aperture Terminals. Under the scope, the licensee may be

[49] The recommendations dated 26.08.2021, on Licensing Framework for Satellite-based connectivity for Low Bit Rate Applications may be accessed at the following URL: https://trai.gov.in/sites/default/files/2024-09/Recommendations_26082021.pdf

permitted to use data connectivity for IoT devices also, through satellite. Scope of Captive VSAT CUG service license may be suitably amended to include provision of satellite-based low-bit-rate connectivity for IoT devices to be used only for internal communication and non-commercial purposes, i.e., for captive use only.

(d) The scope of INSAT MSS-R service authorization is to provide INSAT Mobile Satellite System Reporting service, which is a one-way Satellite based messaging service available through INSAT. As the service is not in operation and many technological developments have taken place in the field of satellite communication, DoT may consider closing this authorization.

(e) The NLD service authorization under Unified License permits the licensee to *inter alia* provide the Leased Circuit services using wireline/wireless media, including satellite media. Scope of NLD service authorization may be suitably amended to include provision of satellite-based low-bit-rate connectivity for IoT devices.

2.27 After considering TRAI's recommendations dated 26.08.2021, DoT, on 06.05.2022, amended the relevant licenses/ authorisations to permit satellite-based connectivity for low bit rate applications, as outlined below:

(a) Amendment under GMPCS Service Authorisation: *The licensee may also provide satellite-based data connectivity to the IoT devices/ Aggregator devices.*

(b) Amendment under Commercial VSAT Service Authorisation: *VSAT terminal may also be used to aggregate the traffic from M2M/ IoT devices/aggregator devices.*

(c) Amendment under Captive VSAT Service Authorisation: *VSAT terminal may also be used to aggregate the traffic from M2M/ IoT devices as long as the CUG nature of the network is not violated.*

2.28 In October 2022, DoT, in its publication titled 'Satellite Reforms 2022', stated that "*[s]atellite based communication services can be provided within the respective scope of the following licenses/ authorizations issued under Section 4 of the Indian Telegraph Act, 1885:*

(i) Global Mobile Personal Communication by Satellite (GMPCS) Service authorization under Unified License

(ii) VSAT CUG Service authorization under Unified License for commercial service

(iii) In-Flight and Maritime Connectivity (IFMC) Service authorization

(iv) Captive VSAT CUG license

(v) National Long Distance (NLD) Service authorization under Unified License.

Besides the above, satellite-based connectivity can also be provided under other authorizations of the Unified License, viz. Access Service as per the scope of the respective license."

2.29 In December 2023, the Indian Parliament enacted the Telecommunications Act, 2023' (hereinafter, also referred to as the "Act"). The Act amends and consolidates the law relating to development, expansion and operation of telecommunication services and telecommunication networks, assignment of spectrum, and for matters connected therewith or incidental thereto. A relevant extract from Section 3 of the Telecommunications Act, 2023, which grants the Central Government the power of authorisation, is reproduced below:

"3 (1) Any person intending to —

(a) provide telecommunication services;

(b) establish, operate, maintain or expand telecommunication network; or

(c) possess radio equipment,

shall obtain an authorisation from the Central Government, subject to such terms and conditions, including fees or charges, as may be prescribed.

(2) The Central Government may while making rules under sub-section (1) provide for different terms and conditions of authorisation for different types of telecommunication services, telecommunication network or radio equipment.

2.30 The relevant terms defined in Section 2 of the Telecommunications Act, 2023 are reproduced below:

(p) "telecommunication" means transmission, emission or reception of any messages, by wire, radio, optical or other electro-magnetic systems, whether or not such messages have been subjected to rearrangement, computation or other processes by any means in the course of their transmission, emission or reception;

(q) "telecommunication equipment" means any equipment, appliance, instrument, device, radio station, radio equipment, material, apparatus, or user equipment, that may be or is being used for telecommunication, including software and intelligence integral to such telecommunication equipment; and excludes such equipment as may be notified by the Central Government;

(s) "telecommunication network" means a system or series of systems of telecommunication equipment or infrastructure, including terrestrial or satellite networks or submarine networks, or a combination of such networks, used or intended to be used for providing telecommunication services, but does not include such telecommunication equipment as notified by the Central Government;

(t) "telecommunication service" means any service for telecommunication;

(u) "user" means a natural or legal person using or requesting a telecommunication service, but does not include person providing such telecommunication service or telecommunication network."

2.31 As outlined in Chapter I of this consultation paper, DoT, through two separate references[50], requested TRAI to provide recommendations on the terms and conditions for the authorisations to (a) provide telecommunication services; and (b) establish, operate, maintain or expand telecommunication network under the Telecommunications Act, 2023. In this regard, after consultation with stakeholders, TRAI sent the following recommendations to DoT:

(a) Recommendations dated 18.09.2024 on the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023; and

(b) Recommendations dated 17.02.2025 on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023.

2.32 After considering TRAI's recommendations dated 18.09.2024 on the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023, DoT, in September 2025, issued the following draft rules under Section 3(1)(a) of the Telecommunications Act, 2023[51] for seeking objections or suggestions of stakeholders:

(a) Draft of the Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025 issued on 05.09.2025[52];

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[50] DoT's reference dated 21.06.2024 on service authorisations, and DoT's reference dated 26.07.2024 on network authorisations

[51] Read with Section 56 (2)(a) of the Telecommunications Act, 2023

[52] Source: Draft of the Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025

(b) Draft of the Telecommunication (Authorisation for Provision of Miscellaneous Telecommunication Services) Rules, 2025 issued on 09.09.2025[53]; and

(c) Draft of the Telecommunication (Authorisation for Provision of Captive Telecommunication Services) Rules, 2025 issued on 10.09.2025[54].

2.33 In the draft rules, DoT included the following authorisations under 'Main', 'Miscellaneous' and 'Captive' Telecommunication Services:

Main Telecommunication Services Authorisations	**Miscellaneous Telecommunication Services Authorisations**	**Captive Telecommunication Services Authorisations**
Unified Service Authorisation	Public Mobile Radio Trunking Service (PMRTS) Authorisation	Captive Mobile Radio Trunking Service (CMRTS) Authorisation
Access Service Authorisation	Enterprise Communication Service Authorisation	Captive Non-Public Network (CNPN) Service Authorisation
Internet Service Authorisation	Machine to Machine (M2M) Service Authorisation	Captive VSAT Service Authorisation
Long Distance Service Authorisation	PM-WANI service authorisation	Captive General Service Authorisation

[53] Source: Draft of the Telecommunication (Authorisation for Provision of Miscellaneous Telecommunication Services) Rules, 2025

[54] Source: Draft of the Telecommunication (Authorisation for Provision of Captive Telecommunication Services) Rules, 2025

	In-Flight and Maritime Connectivity (IFMC) service authorisation	
	Aeronautical Data Communication Service Authorisation	
	International SIM service authorisation	

2.34 The draft of the Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025 provides that an authorisation for main telecommunication services may be granted for providing relevant services as a network service operator (NSO) or virtual network operator (VNO).[55] The draft rules also provide that a VNO may enter into mutual agreements with one or more parent NSOs as specified in the following table:

Table 2.1: Permissible Agreements between NSOs with VNOs

S. No.	VNO	NSO
1.	Authorisation for Unified Service	Authorisation for Unified Service
2.	Authorisation for Access Service	Authorisation for Unified Service, Authorisation for Access Service, or License for Access Service

[55] The draft of the Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025 provides the following definitions of the terms 'NSO' and 'VNO':
"network service operator" or "NSO" means an authorised entity or licensee providing telecommunication service by establishing, operating, maintaining, or expanding telecommunication network for the relevant telecommunication service;
"virtual network operator" or "VNO" means an authorised entity or licensee providing telecommunication service by entering into mutual agreement with a parent NSO which may provide for: (a) connecting its telecommunication equipment or system to the telecommunication network of such NSO, or (b) using the telecommunication network of such NSO;

S. No.	VNO	NSO
3.	Authorisation for Wireline Access Service	Authorisation for Unified Service, Authorisation for Access Service, or License for Access Service
4.	Authorisation for Internet Service	Authorisation for Unified Service, Authorisation for Access Service, Authorisation for Internet Service, License for Access Service, or License for Internet Service
5.	Authorisation for Long Distance Service	Authorisation for Unified Service, Authorisation for Long Distance Service, or License for NLD or ILD Service

2.35 Under the draft of the Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025, DoT included a chapter on 'Specific Conditions for Provision of Telecommunication Services Using Satellite System'. The content of the said chapter has been included in para 2.51 below.

2.36 After considering TRAI's recommendations dated 17.02.2025 on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023, DoT, on 09.10.2025, issued the Draft of the Telecommunications (Authorisation for Telecommunication Network) Rules, 2025 under Section 3(1)(b) of the Telecommunications Act, 2023 for seeking objections or suggestions of stakeholders. In the draft rules, DoT included the following authorisations:

(a) Infrastructure Provider (IP) authorisation,

(b) Digital Connectivity Infrastructure Provider (DCIP) authorisation,

(c) Internet Exchange Point (IXP) provider authorisation,

(d) Satellite Earth Station Gateway (SESG) provider authorisation,

(e) Cloud-hosted Telecommunication Network (CTN) provider authorisation, and

(f) Mobile Number Portability (MNP) provider authorisation.

2.37 An extract from the scope of authorisation under various services authorisations and network authorisations proposed by DoT through the draft rules is enclosed as **Annexure 2.1**.

B. Proposed Satellite Communication Network Authorisation

2.38 As outlined in Chapter I of this consultation paper, DoT has requested TRAI to provide recommendations on the terms and conditions of Satellite Communication Network (SCN) authorisation under Section 3(1)(b) of the Telecommunications Act, 2023 including provision of assignment of spectrum for both feeder link as well as user link under such authorisation. With respect to the need for such an authorisation, DoT has conveyed, *inter-alia*, as below:

(a) *Keeping in view the increasing use of NTN (Non terrestrial networks) including satellite communication networks in provisioning of FSS (Fixed Satellite Services) including VSAT services and MSS (Mobile Satellite Services), TRAI may consider an authorisation for satellite communication network under Section 3(1)(b) of the Telecommunications Act, 2023.*[56]

(b) *SCN authorisation under section 3(1)(b) will enable the relevant authorised entities under Section 3(1)(a), in mutual commercial agreement with the SCN authorised entities, to provide supplemental*

[56] Conveyed by DoT through the supplementary reference dated 17.10.2024

coverage from space using Mobile Satellite Service (MSS) spectrum bands to the users in areas with limited or no terrestrial coverage. [57]

2.39 Essentially, DoT has envisaged that the entities holding the proposed Satellite Communication Network (SCN) authorisation under Section 3(1)(b) of the Telecommunications Act, 2023 would provide SCN-as-a-Service (SCNaaS) to the entities holding authorisations under Section 3(1)(a) of the Telecommunications Act, 2023. In general, a satellite communication network is required to be established for the provision of satellite-based communication services. With the introduction of the SCN authorisation proposed by DoT, service providers would be able to provide satellite-based communication services by utilizing the satellite communication network established by the SCN authorised entity.

2.40 At its core, a satellite communication network is a system that utilizes satellites in space to enable communication. As outlined in Chapter I of this consultation paper, a satellite communication network comprises three main segments: the space segment, the ground segment, the user segment. The following figure depicts the architecture of satellite communication networks.

[57] Conveyed by DoT through the back-reference dated 03.07.2025 to TRAI's recommendations dated 17.02.2025

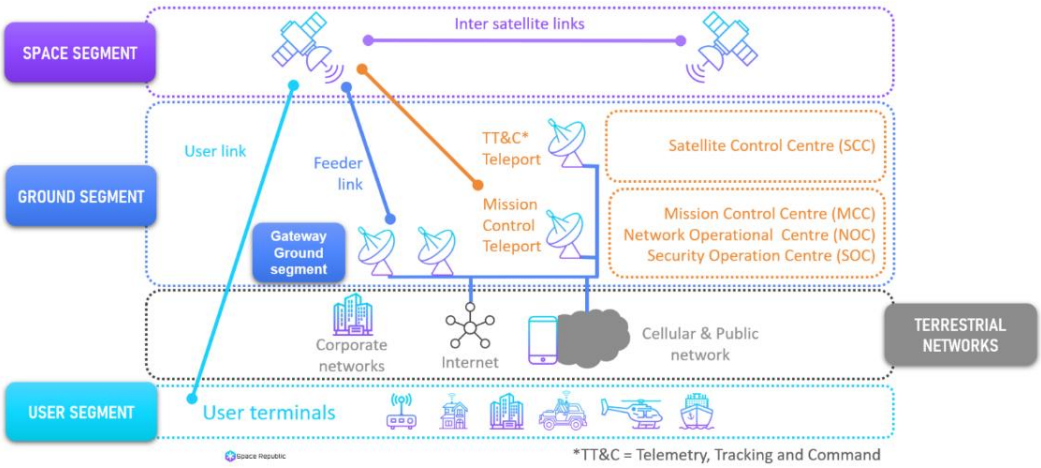

Figure 2.1: The architecture of Satellite Communication Networks[58]

2.41 The space segment contains one or more satellites and is the centrepiece of the communication network. It is equipped with transponders, antennas, and other subsystems necessary for signal reception, processing, and retransmission. The satellite generally acts as a relay station, receiving signals from user terminals, amplifying them, and retransmitting them back to the ground. Satellites can be positioned in different orbits, depending on the coverage and performance requirements of the network. The ground segment includes the Earth stations[59] and operational centres that monitor, control, and manage the satellite operations. The user segment consists of the user terminals, which are the devices used by end-users to communicate with the satellite. These terminals can be fixed[60] such as VSATs, or mobile such as

[58] Source: https://spacerepublic.eu/satcom-architecture/

[59] According to the International Telecommunication Union (ITU) Radio Regulations, an Earth Station is a station located on the Earth's surface or within the major portion of the atmosphere, designed to communicate with space stations (satellites) or with other earth stations via reflecting satellites

[60] As per the extant policy regime in India, user terminal stations on moving platforms are also permitted for provisioning of connectivity subject to compliance to relevant TEC standard(s) and conditions mentioned therein.
Source: Unified License Agreement

satellite phones. User terminals transmit and receive signals to establish communication links with the satellite.[61]

2.42 In short, a satellite communication network could be visualised as a careful orchestration of satellite resources, gateway earth station, and satellite spectrum. International Telecommunication Union (ITU), in its recommendation No. ITU-R S.1711-1[62] has depicted two network topologies of satellite communication networks viz. mesh topology, and star topology as outlined below:

(a) Mesh topology: In mesh topology, any pair of earth stations can be connected directly via satellite.[63]

(b) Star topology: In star topology, signals from various remote users connect to a gateway earth station which in turn connects to terrestrial network.

2.43 In the afore-mentioned recommendation, ITU has depicted the mesh and star topologies through the following figures:

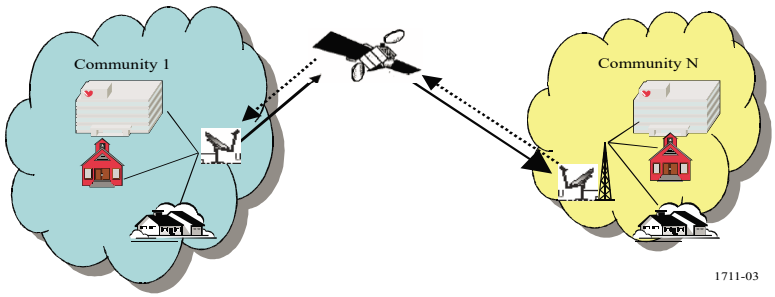

Figure 2.2: Mesh Topology

[61] Source: https://spacerepublic.eu/satcom-architecture/

[62] Source: https://www.itu.int/dms_pubrec/itu-r/rec/s/R-REC-S.1711-1-201001-I!!PDF-E.pdf

[63] In mesh topology, earth stations can communicate without a gateway earth station, but gateways are still used when the network must connect to external terrestrial systems.

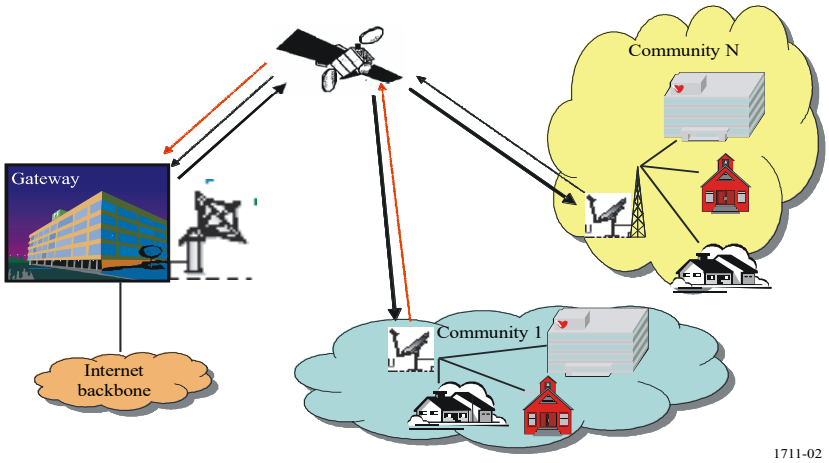

Figure 2.3: Star Topology

2.44 The star topology is the most used topology in satellite communication networks. This topology makes use of a gateway earth station for making a connection between two user earth stations. The gateway earth station also acts as the bridge linking the space-based communication network to terrestrial communication networks.

2.45 *Prima facie*, the satellite communication network authorisation, envisaged by DoT, would enable an entity to perform, *inter-alia*, the following activities:

(a) The authorised entity may obtain the necessary satellite resources (such as transponder bandwidth) from an authorised satellite operator[64].

(b) The authorised entity may establish gateway earth station(s) to communicate with the satellite.

(c) For establishing gateway links [for communication between gateway earth stations and satellite(s)] and user links [for communication between user earth stations and satellite(s)] in its satellite

[64] The satellite operator should have obtained permission from IN-SPACe to enable provisioning of its capacity in India for providing communication services. [URL: https://www.inspace.gov.in/inspace?id=inspace_authorizations]

communication network, the authorised entity may seek assignment of spectrum[65] from the Central Government.

Alternatively, the authorised entity may enter into an agreement with a service authorised entity, desirous of availing its satellite communication network ("the partnering entity") to utilize the spectrum assigned to such partnering entity for the limited purpose of providing Satellite Communication Network as a Service (SCNaaS) to the partnering entity.

(d) The authorised entity may provide SCNaaS to authorised service providers on commercial terms. For this purpose, the authorised entity may provide an interface to authorised service providers to enable them to utilize its satellite communication network.

(e) Under the SCN authorisation, the authorised entity may not provide telecommunication services directly to users[66].

2.46 At present, in India, for the provision of satellite-based telecommunication services, the service providers are required to deploy ground-based satellite communication networks by themselves. *Prima facie*, the introduction of the proposed satellite communication network under Section 3(1)(b) of the Telecommunications Act, 2023 may obviate the need for establishing satellite communication network by service providers. It would functionally delink the service and network layers by allowing service providers to operate at the

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[65] A relevant extract of Section 4 of the Telecommunications Act, 2023 is given below:
4. (1) The Central Government, being the owner of the spectrum on behalf of the people, shall assign the spectrum in accordance with this Act, and may notify a National Frequency Allocation Plan from time to time.
(2) Any person intending to use spectrum shall require an assignment from the Central Government.
(3) The Central Government may prescribe such terms and conditions as may be applicable, for such assignment of spectrum, including the frequency range, methodology for pricing, price, fees and charges, payment mechanism, duration and procedure for the same.
(4) The Central Government shall assign spectrum for telecommunication through auction except for entries listed in the First Schedule for which assignment shall be done by administrative process.

[66] The Telecommunications Act, 2023 defines the term "user" as below:
"user" means a natural or legal person using or requesting a telecommunication service but does not include person providing such telecommunication service or telecommunication network.

service layer without investing in or deploying their own satellite communication networks.

2.47 It is worth noting that, based on TRAI's recommendations dated 17.02.2025, DoT has already included an authorisation for the establishment of gateway earth stations [viz. Satellite Earth Station Gateway (SESG) Provider authorisation] in the draft of the Telecommunications (Authorisation for Telecommunication Network) Rules, 2025. In respect of SESG Provider authorisation, these draft rules provide, *inter-alia*, as below:

(a) The scope of SESG provider authorisation comprises of establishing, operating, maintaining, or expanding SESG for such satellite systems which are authorised by the Department of Space or IN-SPACe, or any other office so authorised by the Central Government for this purpose.

(b) The SESG Provider authorised entity may provide its SESG infrastructure to entities authorised under sub-section (1) of section 3 of the Telecommunications Act 2023 ("partnering entities"), to enable the use of satellite systems for the purposes of the authorisation of such partnering entity, in accordance with the mutual agreement with such entities on a fair and non-discriminatory basis.

(c) The authorised entity holding the SESG provider authorisation may utilize the spectrum of the partnering entity for the limited purpose of configuration, while the right to use of spectrum shall remain with the partnering entity.

2.48 It is noteworthy that the proposed Satellite Communication Network (SCN) authorisation would, essentially, be a super-set of the proposed SESG Provider authorisation. The entities holding the proposed SCN authorisation would be permitted to not only establish gateway earth stations (permitted under the scope of the proposed SESG Provider authorisation), but also seek the

assignment of satellite spectrum from the Central Government (not permitted under the scope of the proposed SESG authorisation).

2.49 The policy and regulatory framework for any new authorisation involves, essentially, two sets of conditions – one involving the conditions for the grant of authorisation to entities (such as eligibility conditions), and the other involving the conditions governing the operation under the authorisation (such as technical conditions, operating conditions, security conditions etc.). Both sets of conditions would require to the prescribed for Satellite Communication Network authorisation as well. Specifically, with respect to the eligibility conditions, it is worth mentioning that DoT, through the draft dated 09.10.2025 of the Telecommunications (Authorisation for Telecommunication Networks) Rules, 2025, proposed the following eligibility conditions for the grant of SESG Provider authorisation:

"(1) An applicant seeking authorisation under these rules shall be a company incorporated under the Companies Act.

(2) An applicant seeking SESG provider authorisation under these rules shall, in addition to the requirement specified in sub-rule (1), also be either of the following:

(a) a space segment provider, authorised by the Department of Space or IN-SPACe, or any other office so authorised by the Central Government for this purpose;

(b) a subsidiary of a space segment provider as specified in clause (a); or

(c) a person having agreement with a space segment provider as specified in clause (a), for establishing, maintaining, operating, or expanding SESG in respect of the satellite systems of the space segment provider in India."

2.50 Apparently, the eligibility conditions for the grant of the proposed SCN authorisation should be analogous to the eligibility conditions for the grant of

the proposed SESG Provider authorisation (as proposed by DoT through the draft rules dated 09.10.2025) with necessary modifications.

2.51 The Authority also notes that in the draft dated 05.09.2025 of the Telecommunications (Authorisation for Provision of Main Telecommunication Services) Rules, 2025, DoT has proposed a set of general conditions, financial conditions, technical and operating conditions, and security conditions. Besides, DoT proposed "specific conditions for provision of telecommunication services using satellite system" under Chapter 7 of the draft rules. Chapter 7 of the draft rules dated 05.09.2025 is reproduced below:

"Chapter 7: Specific Conditions for Provision of Telecommunication Services Using Satellite System

62. Applicability of Chapter 7

This chapter shall apply to an authorised entity providing telecommunication service using satellite networks including non-terrestrial networks and GMPCS networks, and all such authorised entities shall comply with the conditions specified in this chapter, as well as other terms and conditions of such authorisation as provided under these rules.

63. Provision of telecommunication services through satellite systems

(1) An authorised entity intending to provide telecommunication service using satellite systems, shall apply for permission of the Central Government, in the form and manner, as specified on the portal.

(2) An authorised entity making an application under sub-rule (1) shall:

(a) own the relevant satellite or space segment capacity; or

(b) enter into an agreement with a space segment provider authorised by the Department of Space or INSPACe, or any other office so authorised by the Central Government for this purpose, for leasing such satellite or space segment capacity; and-

(c) ensure that such agreement entered into under clause (b) has a provision obligating the space segment provider to report any incident such as:

(i) unauthorised satellite signal that it may detect originating or terminating within India; and

(ii) unauthorised access from India of any satellite that may be under its control or operation which is being used to provide service outside India;

to the authorised entity and in-turn, the authorised entity shall immediately report such incidents to the Central Government.

(3) The information along with supporting documents to be provided by an authorised entity in the application made under sub-rule (1) shall include:

(a) details of the satellite system, the earth station gateway for each such satellite system and the associated telecommunication network, along with their location details;

(b) satellite or space segment capacity;

(c) where such capacity is leased from a space segment provider, a certified true copy of such agreement; and

(d) any other information as may be required by the Central Government.

(4) The Central Government may, subject to its assessment of the application and security vetting, if required, by the appropriate authority responsible for satellite network clearance, grant permission, subject to terms and conditions as it may specify.

(5) An authorised entity may use one or more permitted satellite systems, subject to compliance with the condition that the satellite earth station gateway for each such satellite system and the associated telecommunication network is located in India.

(6) An authorised entity shall inform the Central Government of any changes that may occur to the agreements specified under clause (b) of sub-rule (2), and submit the revised copy of such agreement, within fifteen days of such change.

(7) An authorised entity shall, prior to undertaking any change in the permitted satellite system, including change in frequency band, technology, number of satellites, orbits or any other configuration related to ground and space segments, apply to the Central Government for its prior written approval, in the form and manner as specified on the portal.

(8) The Central Government may, on assessment of the application under sub-rule (7), grant its written approval to such authorised entity.

64. Technical and operating conditions

(1) An authorised entity permitted to use satellite systems under rule 63 shall comply with the following technical and operating conditions:

(a) ensure that all traffic on the satellite network originating from or terminating on the user terminals located in India, shall pass through an authorised entity's satellite earth station gateway and associated telecommunication network located in India;

(b) ensure that no traffic originating from or terminating at a user terminal located in India is routed via satellite earth station gateways located outside India either directly or through inter satellite communication links, including during failure of satellite earth station gateway in India or as part of telecommunication network optimization;

(c) ensure that the user traffic shall not be mirrored by an authorised entity to any satellite system or server located outside India through inter satellite communication links or through any other means;

(d) provide real time traffic monitoring facility to ensure the compliance of clause (a) to (c) above;

(e) ensure that no direct communication shall take place between two or more user terminals through one or more satellites, without routing the user traffic through satellite earth station gateway;

(f) provide details relating to frequency plan to the Central Government, in the form and manner as specified on the portal, and operate the satellite network as per the frequency plan approved by the Central Government;

(g) provide to the Central Government, in the form and manner as specified on the portal, self-certified details of the antenna parameters along with radiation pattern results, for validation of the same;

(h) provide any information of and conduct tests, for interference monitoring, and to take necessary steps, as directed by the Central Government, for its mitigation; and

(i) the VSAT or any other FSS terminal used for providing backhaul link to a base station or connectivity to an internet node or any other telecommunication equipment, shall be located in the service area of an authorised entity having such base station or internet node or any other telecommunication equipment:

Provided that, the corresponding satellite earth station gateway may be located anywhere in India and the connecting link from this satellite earth station gateway to the core telecommunication network of such authorised entity using such backhaul link or connectivity may be established as per the applicable rules.

(2) An authorised entity may, subject to the prior written approval of the Central Government, for which an application may be submitted in the form and manner, and subject to such terms and conditions, as may be specified on the portal:

(a) use its satellite earth station gateway established in India for providing telecommunication services to users located outside India, subject to: (i) obtaining all clearances (by whatever name called) as may be required to provide such telecommunication services in the relevant jurisdiction where the user is located, and (ii) compliance with such directions as the Central Government may issue, from time to time; or

(b) enter into arrangements with entities providing telecommunication services, in areas outside India, after obtaining all clearances (by whatever name called) as may be required to provide such telecommunication services in the relevant jurisdiction where the user is located, for enabling use of the authorised entity's satellite earth station gateway established in India for uplink and downlink of signals to and from satellites, subject to compliance with such directions as the Central Government may issue, from time to time.

(3) The Central Government may, subject to its assessment of the application made under sub-rule (2), and security vetting, if required, by the appropriate authority responsible for satellite network clearance, grant permission as requested by the authorised entity, subject to terms and conditions as it may specify, including the following:

(a) the telecommunication traffic between the satellite earth station gateway established in India and foreign telecommunication network, serving the users located outside national service area, shall be confined to only the equipment comprising the satellite earth station gateway, and shall not to be transmitted into or received from a telecommunication network or user terminal located in India; and

(b) the telecommunication traffic between the satellite earth station gateway established in India and foreign telecommunication network, serving the users located outside national service area, shall be routed through authorised ILD gateway.

(4) The authorised entity shall indemnify the Central Government against any and all claims that may arise from the implementation of the arrangements covered under sub-rule (2).

65. Rollout Obligations

(1) An authorised entity, for provision of telecommunication service, may either establish its own satellite earth station gateway or use the satellite earth station gateway established by other authorised entities that are eligible for

sharing such satellite earth station gateways under the terms of their respective authorisations.

(2) An authorised entity shall rollout the telecommunication network using satellite systems and assigned spectrum, within twelve months from the date of assignment of such spectrum, as required for providing telecommunication services to users.

(3) An authorised entity shall register with the Central Government, in the form and manner as may be specified, for verification of the compliance of rollout obligations, as per the test schedule test procedure (TSTP) specified by the Central Government.

(4) On successful verification under sub-rule (3), the date of registration with the Central Government shall be treated as the date of compliance of the rollout obligations.

(5) In case of failure upon verification under sub-rule (3), an authorised entity shall re-register, after necessary corrections, and in such cases, the date of re- registration with the Central Government, on successful verification, shall be treated as the date of compliance of the rollout obligation.

(6) Any failure to comply with the rollout obligations shall be treated as breach of terms and conditions of the authorisation and shall be dealt as per the Telecommunications (Adjudication and Appeal) Rules, 2025:

Provided that if the rollout obligations are complied with within thirty days of the expiry of the due date for complying with such obligations, the Central Government shall consider the same as fulfilment of rollout obligation, without treating it as breach of terms and conditions of the authorisation.

(7) In case of failure to comply with the rollout obligations, in addition to imposition of civil penalty as per the Telecommunications (Adjudication and Appeal) Rules, 2025, the spectrum assignment for satellite systems, may be withdrawn in accordance with sub-section (2) of section 7 of the Act.

66. Security conditions

(1) The operation, maintenance and control facility for the satellite earth station gateway, user terminals and associated telecommunication network, shall be located in India.

(2) An authorised entity shall ensure that the permitted satellite systems be used for providing telecommunication services for which it has been authorised and such satellite systems are not used for any unauthorised activities including surveillance and electronic warfare, or in a manner that may jeopardize the sovereignty and security of India.

(3) An authorised entity shall ensure that in addition to the Target Intercept List (TIL) based interception and monitoring, geographic location-based interception and monitoring is also possible.

(4) An authorised entity shall ensure that a user, registered outside India and using a user terminal of the permitted satellite system, shall register such user terminal with the authorised entity when operating in India.

(5) An authorised entity shall ensure that any access to its telecommunication services to users shall be provided only after registering their user terminals on Equipment Identity Register (EIR) of the authorised entity:

Provided that a user terminal, brought from outside India, shall be registered on such EIR only after verifying the customs clearance obtained by the user in respect of such user terminal.

(6) An authorised entity shall monitor the access to and use of its satellite system, and immediately report to the Central Government, in the form and manner as specified on the portal, any occurrence of an attempt to access and operate a user terminal not registered under sub-rule (5), along with the information about such user terminal and its location.

(7) The Central Government may separately notify suitable mechanism for online co- ordination on a regular basis between the air, land and sea customs and an authorised entity for exchange of information in respect of user

terminals of satellite systems legally brought into the country which would facilitate the authorised entity in identification and segregation of user terminals of satellite systems clandestinely brought into India, to prevent their access to the satellite system.

(8) An authorised entity shall monitor the operations of user terminals of satellite systems within India, in the manner as specified by the Central Government or the relevant authorised agency, and shall upon directions by the Central Government, provide details relating to the identity and location of such user terminals.

(9) An authorised entity shall ensure that no location spoofing device, whether hardware or software, be incorporated with the user terminals to hide the actual location of the user terminals and put in place a mechanism for identification and reporting of any such device in its telecommunication network.

(10) An authorised entity shall bind stationary type Fixed Satellite Service (FSS) user terminals to the geolocation of the premises of the user, including in respect of any relocation.

(11) An authorised entity shall ensure that no user relocates the stationary type FSS user terminal except with the prior written approval from such authorised entity.

(12) An authorised entity shall discontinue the provision of telecommunication services to a user who attempts to, or relocates its FSS user terminal, without its prior written approval.

(13) An authorised entity shall ensure that the telecommunication services of any user terminal, either in idle mode or in use, are discontinued when such user terminal enters into the areas restricted under sub-rule (2) of rule 38.

(14) An authorised entity shall ensure compliance with the directions and timelines issued by the Central Government in respect of provision of Indian navigation satellite system-based positioning system in its user terminals.

(15) An authorised entity shall develop and submit to the Central Government, in the manner as may be specified, a time-bound action plan aiming to achieve, within a period of five years from the date of commercial launch of services, indigenisation and procurement of at least twenty per cent of the value of the goods, required for the ground segment of satellite network, from India.

(16) An authorised entity shall submit annual implementation plans pursuant to the action plan specified under sub-rule (15).

2.52 *Prima facie*, many of the technical and operating conditions, roll-out conditions, security conditions, etc. included by DoT in the Chapter 7 of the draft rules dated 05.09.2025 (which relate to network) should also be made applicable on the proposed SCN authorisation with necessary modifications.

2.53 Specifically, with respect to the security conditions, it is noteworthy that DoT, on 05.05.2025, issued an office memorandum (OM) on the subject - "Instructions related to security aspects in Chapter XII of the UL Agreement for the provision of GMPCS service". Through the said OM, DoT imposed additional security conditions (other than the existing security conditions) on the providers of GMPCS service. A copy of DoT's OM dated 05.05.2025 is enclosed as **Annexure 2.2**. The additional security conditions relate, *inter-alia*, to gateway, lawful interception facility, interference, etc. Apparently, some of the conditions included by DoT in the OM dated 05.05.2025 could be relevant for SCN authorised entities as well.

2.54 As mentioned earlier in this chapter, DoT, in the draft Rules for Main Telecommunication Services dated 05.09.2025, has proposed two types of authorisations for main telecommunication services viz. Network Service Operator (NSO) or Virtual Network Operator (VNO). An NSO provides

telecommunication service by establishing, operating, maintaining, or expanding telecommunication network for the relevant telecommunication service, while a VNO provides telecommunication service by entering into a mutual agreement with a parent NSO.

2.55 As brought out earlier, the entities holding the proposed SCN authorisation would establish, maintain, operate and expand a satellite communication network to provide SCNaaS to service provider entities [i.e. entities authorised under section 3(1)(a) of the Telecommunications Act, 2023]; the service provider entity would provide services to its users by utilizing the SCN of the proposed SCN authorised entity. There could be a scenario where a VNO authorised to provide a telecommunication service [parented to an NSO authorised to provide the relevant service] might require the SCNaaS from the proposed SCN authorised entity for the delivery of services as per the scope of its authorisation. For example, a VNO (Internet Service) which has parented itself to an NSO (Internet Service) for obtaining upstream internet bandwidth might prefer to utilize the SCN established by the proposed SCN authorised entity for delivering internet services to its users in remote and far-flung areas. *Prima facie*, in case VNOs are also permitted to utilize SCNs of the proposed SCN authorised entities, it may enable several use cases.

2.56 In this context, the Authority solicits the views of stakeholders on the following sets of questions:

Issues for Consultation:

Q1. What should be the eligibility conditions, area of operation, validity period of authorisation and the scope of the proposed Satellite Communication Network (SCN) authorisation under

Section 3(1)(b) of the Telecommunications Act, 2023? Kindly provide a detailed response with justification.

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.

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.

2.57 As outlined in Chapter I, the gateway earth station acts as the bridge linking the satellite communication network to the terrestrial communication network. A gateway earth station receives signals from satellite(s), processes them through a chain of radio frequency (RF) equipment, intermediate frequency (IF) equipment and baseband equipment, and routes them into terrestrial networks, enabling broadband, voice, and data services for end-users. The baseband equipment (also referred to as "baseband system") is the critical pivot point where satellite signals become usable telecommunication services. The baseband equipment performs modulation, demodulation and error correction of baseband signal, manages the scheme for accessing the satellite and network resources, the scheme for addressing users (through IP addresses, telephone numbers etc.) and service profile of users (user specific service plans, quality of service parameters etc.), controls

the user traffic (Mbps), and quantum of frequency spectrum in use, and monitors integrity and security of user traffic. In short, baseband equipment provides control, visibility, and management of the satellite communication services being rendered to end users.

2.58 Through the recommendations dated 17.02.2025 on 'the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023', read with 'the Response dated 13.08.2025 to the DoT's back-reference dated 03.07.2025 on the recommendations dated 17.02.2025', TRAI recommended, *inter-alia*, as below with respect to the installation of baseband equipment at satellite earth station gateway:

"The baseband equipment to be installed at the SESG should ordinarily be owned by the eligible service authorised entity interworking with the SESG Provider authorised entity. However, the SESG Provider authorised entity should be permitted to install the baseband equipment at its SESG on behalf of the eligible service authorised entity:

Provided that the baseband equipment to be installed at the SESG may be permitted to be owned by the SESG authorised entity as well if the control, visibility, and management of the satellite communication services being rendered to end users remains with the service authorised entity."

2.59 After considering the TRAI's recommendations dated 17.02.2025 on 'the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023', read with 'the Response dated 13.08.2025 to the DoT's back-reference dated 03.07.2025 on the recommendations dated 17.02.2025', DoT has issued the draft dated 09.10.2025 of the Telecommunications (Authorisation for Telecommunication Networks) Rules, 2025 for seeking objections or suggestions of stakeholders. In the draft rules dated 09.10.2025, DoT has proposed the following condition in respect of

installation of baseband equipment at satellite earth station gateway under the proposed 'Satellite Earth Station Gateway (SESG) Provider Authorisation:

"The authorised entity holding the SESG provider authorisation establishing, operating, maintaining, or expanding the baseband systems … shall extend control, visibility, resource allocation and management of the telecommunication services, being provisioned using satellite system to users, to the partnering entity on mutually agreed terms and conditions."

2.60 Apparently, a similar provision in respect of the installation of baseband equipment on gateway earth stations could be made applicable on SCN authorised entities as well. In this context, the Authority solicits inputs of stakeholders on the following question:

Issue for Consultation:

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

2.61 In the year 2020, the Government of India introduced space reforms, allowing greater participation of non-government entities (NGEs) in space activities and ensuring a level playing field. To provide regulatory clarity and foster a thriving

space ecosystem, the Government issued Indian Space Policy-2023[67]. Para 5.1 of the Indian Space Policy-2023 states that IN-SPACe shall act as the single window agency for the authorisation of space activities by government entities as well as NGEs, subject to relevant Government directives, keeping in mind safety, national security, international obligations and/or foreign policy considerations.

2.62 In May 2024, the IN-SPACe issued 'Norms, Guidelines and Procedures for Implementation of Indian Space Policy-2023 in respect of Authorization of Space Activities (NGP)'[68]. The relevant extract of the Chapter IX of the NGP is reproduced below:

"

(a) Authorization from IN-SPACe shall be required for establishment and/ or operations of the following category of ground stations:

i. Satellite Control Centre (SCC)

ii. Telemetry, Tracking and Command (TT&C)

iii. Mission Control Centre (MCC)

iv. Remote Sensing Data reception station

v. Ground stations for supporting operations of the space-based services such as Space Situational Awareness (SSA), astronomical, space science or navigation missions, etc.

vi. Any other category, as decided by IN-SPACe.

(b) Applicant shall obtain the requisite clearance/ approval/ license from the relevant Government department(s)/ ministries, as applicable and necessary for operationalization of such ground station(s), after obtaining IN-SPACe Authorization.

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[67] https://www.isro.gov.in/media_isro/pdf/IndianSpacePolicy2023.pdf

[68] https://www.inspace.gov.in/sys_attachment.do?sys_id=5d532e37877102503b0f0d060cbb35cf

(c) *IN-SPACe Authorization is not required for setting up of gateways or hubs supporting satellite communication services such as Direct-to-Home (DTH), TV Uplink, Digital Satellite News Gathering Service (DSNG), Very Small Aperture Terminal (VSATs), broadband, Inflight and Maritime connectivity (IFMC), etc. Establishment and operations of such gateways/ hubs including those required for supporting the operations of the high throughput GSO or NGSO satellites/ constellations shall be governed by the prevailing licensing/ approvals process by the respective government departments/ ministries. …"* (Emphasis supplied)

2.63 In this context, it requires to be deliberated as to whether any provisions are still required to be included in the terms and conditions of the proposed Satellite Communication Provider authorisation considering the policy/ Act in the Space sector. Accordingly, the Authority solicits the views of stakeholders on the following question:

Issue for Consultation:

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

2.64 Worldwide, in many countries, regulators have prescribed reference agreements for ensuring effective interconnection between various service providers engaged in the delivery of telecommunication services through public switched telephone network (PSTN) and public land mobile network (PLMN). In India, in the year 2002, TRAI issued the Telecommunication Interconnection (Reference Interconnect Offer) Regulation, 2002. As per the

said regulation, any telecom service provider, which is enjoying Significant Market Power (SMP) status, is required to submit its proposed Reference Interconnect Offer (RIO), describing, *inter-alia*, the technical and commercial conditions for interconnection based on the model RIO as annexed to the regulation to the Authority for approval and then to publish the approved RIO on its website. Such RIO, thereafter, forms the basis of all interconnection agreements to be entered into by/ and with the issuer of the RIO.

2.65 Besides, through the International Telecommunication Access to Essential Facilities at Cable Landing Stations Regulations, 2007, TRAI has mandated that every owner of cable landing station shall, in respect of its each cable landing station, submit to the Authority, a document containing the terms and conditions of Access Facilitation and Co-location facilities including landing facilities for submarine cables at its cable landing stations for specified international submarine cable capacity ("Cable Landing Station-Reference Interconnect Offer") in accordance with the provisions of the regulations for approval of Authority. Every owner of a cable landing station shall publish, on its website and in such other manner as the Authority may specify, within fifteen days from the date of approval of the Cable Landing Station-Reference Interconnect Offer by the Authority, the Cable Landing Station-Reference Interconnect Offer so approved by the Authority.

2.66 Generally, interconnection between any two networks is mutually profitable if the networks are vertically related. On the other hand, when two networks offer substitute services, i.e., they are horizontally related, a network operator has the incentive to foreclose or marginalize its opponent network through various methods including high interconnection fees. Such a conduct may result in scant supply or high prices of services, to the detriment of consumers. In such situations, regulators often mandate the network operators to publish

a regulator-approved reference interconnection offer (RIO) on their websites, which forms the basis of all interconnection agreements with other network operators.

2.67 In this context, it requires to be deliberated as to whether there is a need for mandating a reference agreement between the entities holding the proposed Satellite Communication Network authorisation and the entities holding service authorisations under the Telecommunications Act, 2023 (which are desirous of availing SCNaaS). Accordingly, the Authority solicits the views of stakeholders on the following question:

Issue for Consultation:

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.

2.68 On 10.11.2025, the Authority issued a consultation paper[69] on 'Review of existing TRAI Regulations on Interconnection matters'. In the consultation paper dated 10.11.2025, the Authority included a section to examine the issues with respect to "Interconnection framework for satellite-based telecommunications

[69] Source: https://trai.gov.in/sites/default/files/2025-11/CP_10112025.pdf

services"[70]. Through the consultation paper dated 10.11.2025, the Authority solicited inputs from stakeholders on, *inter-alia*, the following question:

Q34. What should be the interconnection framework for satellite-based telecommunications networks with other telecom networks? Further, whether the interconnection frameworks for MSS and FSS satellite-based telecommunications networks should be distinct? Please provide your response along with end-to-end diagrammatic representation and justification in respect of the following:

a. Satellite - Satellite network interconnection

b. Satellite - PLMN interconnection

c. Satellite - PSTN interconnection"

2.69 The Authority is at present examining the comments/ inputs received from the stakeholders on the issues raised through the consultation paper dated 10.11.2025 on 'Review of existing TRAI Regulations on Interconnection matters'.

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[70] A relevant extract from the consultation paper dated 10.11.2025 on 'Review of existing TRAI Regulations on Interconnection matters' is reproduced below:

"2.303. The question of whether an interconnection framework should be established for satellite-based telecom services arises amidst the growing importance of satellite technologies in extending telecommunication coverage to remote and underserved areas, needs to be discussed. Satellite based networks provide vital connectivity where terrestrial infrastructure, including PLMN and PSTN, may not be feasible or cost-effective. As such, integrating these satellite services within the broader telecom ecosystem, including seamless interconnection with existing PLMN and PSTN networks, including voice and SMS traffic interoperability across mobile and landline networks, may also need examination.

2.304. Further, it needs to be assessed that whether separate interconnection framework is required for Mobile Satellite Service (MSS) and Fixed Satellite Service (FSS), or the existing interconnection framework would be sufficient to meet the requirements of satellite-based telecommunications networks. In case, a separate regulatory framework is required for these interconnections, the key technical requirements may include specifying the nature and location of Points of Interconnect (POIs), which involve satellite earth station gateways and their interconnection with other satellite networks, PLMN and PSTN. Regulatory considerations could address interconnection charges, interconnection usage charges, quality of service guarantees, and terms and conditions of interconnection agreements, ensuring effective interoperability among satellite, PLMN, and PSTN operators.

2.305. One may argue that since MSS-based telecommunications network are largely similar to the PLMN and as FSS-based telecommunications network are similar to the PSTN, hence no separate interconnection framework for the satellite-based telecommunications network may be required. Therefore, it has to be examined whether the interconnection framework for PLMN and PSTN can be adopted for satellite-based telecommunications networks.

2.306. Satellite-based telecommunications network would likely have a national footprint with certain limited number of gateways. The connectivity with the satellite-based telecommunications network is extended through these gateways. The interconnection of satellite-based telecommunications network with PLMN and PSTN, for which POIs are existing at LSA and below LSA level respectively, needs to be examined."

In this background, the Authority solicits the views of stakeholders on the following set of questions:

Issues for Consultation:

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.

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

C. Assignment of Spectrum for the Satellite Communication Network Authorisation

2.70 This section begins with a description of the provisions of the Telecommunications Act, 2023 related to the assignment of spectrum. Then, it recapitulates the salient points related to the assignment of spectrum to the proposed SCN authorised entities emerging from the communications between DoT and TRAI. Subsequently, it provides a brief description of the use of spectrum in a typical satellite communication network. Thereafter, it

proceeds to identify the specific issues related to the usage of spectrum under the proposed SCN authorisation for consultation with stakeholders.

(1) Provisions related to the assignment of spectrum in the Telecommunications Act, 2023

2.71 Section 4 of the Telecommunications Act, 2023 grants the power of assignment of spectrum to the Central Government. Section 4 of the Act is reproduced below:

"4. (1) The Central Government, being the owner of the spectrum on behalf of the people, shall assign the spectrum in accordance with this Act, and may notify a National Frequency Allocation Plan from time to time.

(2) Any person intending to use spectrum shall require an assignment from the Central Government.

(3) The Central Government may prescribe such terms and conditions as may be applicable, for such assignment of spectrum, including the frequency range, methodology for pricing, price, fees and charges, payment mechanism, duration and procedure for the same.

(4) The Central Government shall assign spectrum for telecommunication through auction except for entries listed in the First Schedule for which assignment shall be done by administrative process.

Explanation.— For the purposes of this sub-section,—

(a) "administrative process" means assignment of spectrum without holding an auction;

(b) "auction" means a bid process for assignment of spectrum.

(5) (a) The Central Government may, by notification, amend the First Schedule for assignment of spectrum—

(i) in order to serve public interest; or

(ii) in order to perform government function; or

(iii) in cases where auction of spectrum is not the preferred mode of assignment due to technical or economic reasons.

(b) The notification referred to in clause (a) shall be laid before each House of Parliament.

(6) The Central Government, if it determines that it is necessary in the public interest so to do, may exempt,—

(a) from the requirement of assignment under sub-section (2), in such manner as may be prescribed; and

(b) by notification, specific usages within specified frequencies and parameters, from the requirements of sub-section (2).

(7) Any exemption with respect to use of spectrum granted under the Indian Telegraph Act, 1885 and the Indian Wireless Telegraphy Act, 1933 prior to the appointed day, shall continue under this Act, unless otherwise notified by the Central Government.

(8) Any spectrum assigned through the administrative process prior to the appointed day, shall continue to be valid on the terms and conditions on which it had been assigned, for a period of five years from the appointed day, or the date of expiry of such assignment, whichever is earlier."

2.72 The First Schedule, mentioned in sub-section 4 of Section 4 of the Act is reproduced below:

"THE FIRST SCHEDULE

…

ASSIGNMENT OF SPECTRUM THROUGH ADMINISTRATIVE PROCESS

1. National security and defence.

2. Law enforcement and crime prevention.

3. Public broadcasting services.

4. Disaster management, safeguarding life and property.

5. Promoting scientific research, resource development, and exploration.

6. Safety and operation of roads, railways, metro, regional rail, inland waterways, airports, ports, pipelines, shipping, and other transport systems.

7. Conservation of natural resources and wildlife.

8. Meteorological department and weather forecasting.

9. Internationally recognised dedicated bands for amateur stations, navigation, telemetry, and other like usages.

10. Use by Central Government, State Governments, or their entities or other authorised entities for safety and operations of mines, ports and oil exploration and such other activities where the use of spectrum is primarily for supporting the safety and operations.

11. Public Mobile Radio Trunking Services.

12. Radio backhaul for telecommunication services.

Explanation.—The term "radio backhaul" shall mean the use of radio frequency only to interconnect telecommunication equipment, other than the customer equipment in telecommunication networks.

13. Community Radio Stations.

14. In-flight and maritime connectivity.

15. Space research and application, launch vehicle operations and ground station for satellite control.

16. Certain satellite-based services such as: Teleports, Television channels, Direct To Home, Headend In The Sky, Digital Satellite News Gathering, Very Small Aperture Terminal, Global Mobile Personal Communication by Satellites, National Long Distance, International Long Distance, Mobile Satellite Service in L and S bands.

17. Use by Central Government, State Governments or their authorised agencies for telecommunication services.

18. Bharat Sanchar Nigam Limited (BSNL) and Mahanagar Telephone Nigam Limited (MTNL).

19. Testing, trial, experimental, demonstration purposes for enabling implementation of new technologies, including for creation of one or more Regulatory Sandboxes."

2.73 While Section 4 of the Telecommunications Act, 2023 deals with the aspects related to assignment of spectrum, Section 5, 6, 7, and 8 of the Telecommunications Act, 2023 deal with the aspects related to refarming and harmonization, technology neutral use of spectrum, optimal utilization of spectrum and establishment of monitoring and enforcement mechanism respectively. These sections are reproduced below:

"5. Re-farming and harmonisation.—The Central Government may, to enable more efficient use of spectrum, re-farm or harmonise any frequency range assigned under section 4, subject to such terms and conditions, as may be prescribed.

Explanation.—For the purposes of this section,—

(a) "harmonisation" means rearrangement of a frequency range;

(b) "re-farming" means repurposing of a frequency range for a different use, other than that for which it is used by an existing assignee.

6. Technologically neutral use of spectrum.—The Central Government may enable the utilisation of the spectrum in a flexible, liberalised and technologically neutral manner, subject to such terms and conditions, including applicable fees and charges, as may be prescribed.

7. Optimal utilisation of spectrum.—(1) The Central Government may, to promote optimal use of the available spectrum, assign a particular part of a spectrum that has already been assigned to an entity, known as the primary assignee, to one or more additional entities, known as the secondary

assignees, where such secondary assignment does not cause harmful interference in the use of the relevant part of the spectrum by the primary assignee, subject to such terms and conditions as may be prescribed.

(2) The Central Government may, notwithstanding anything contained in any other law for the time being in force, after providing a reasonable opportunity of being heard to the assignee concerned, determines that any assigned spectrum has remained unutilised for insufficient reasons for such period as may be prescribed, terminate such assignment, or a part of such assignment, or prescribe further terms and conditions relating to spectrum utilisation.

8. Establishment of monitoring and enforcement mechanism.— (1) The Central Government may establish by notification, such monitoring and enforcement mechanism as it may deem fit to ensure adherence to terms and conditions of spectrum utilisation and enable interference-free use of the assigned spectrum.

(2) The Central Government may permit the sharing, trading, leasing and surrender of assigned spectrum, subject to the terms and conditions, including applicable fees or charges, as may be prescribed."

(2) The aspects related to the assignment of spectrum to the proposed SCN authorised entities emerging from the communication between DoT and TRAI

2.74 DoT, through its supplementary reference dated 17.10.2024, conveyed to TRAI that "*keeping in view the increasing use of NTN (Non terrestrial networks) including satellite communication networks in provisioning of FSS (Fixed Satellite Services) including VSAT services and MSS (Mobile Satellite Services), TRAI may consider an authorisation for satellite communication*

network under Section 3(1)(b) of the Telecommunications Act, 2023 alongwith the following:

d. Terms and conditions relating to such authorisation

e. Provision of assignment of spectrum for both feeder link as well as user link under such authorisation

f. Service area of such authorisation."

2.75 In this regard, after following a comprehensive consultation with stakeholders, TRAI, provided its recommendations dated 17.02.2025[71] on 'the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023'. About the satellite communication network authorisation suggested by DoT, TRAI conducted a detailed analysis and expressed its considered opinion that "*the permissible options for the delivery of satellite-based telecommunication services have been enabled through the Authority's recommendations dated 18.09.2024 in respect of Satellite-based Telecommunication Service authorisation and the present recommendations in respect of the SESG authorisation. Accordingly, the Authority is of the view that "there is no need for introducing any additional authorisation for satellite communication network under the Telecommunications Act, 2023, at this stage".*

2.76 Subsequently, DoT, through its back-reference dated 03.07.2025 to the TRAI's recommendations dated 17.02.2025, stated that *"given that the Government has not accepted the Satellite-based Telecommunication Service Authorisation under Section 3(1)(a) - the Government proposes the*

[71] Recommendations dated 17.02.2025: Recommendation of TRAI on the 'Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023' dated 17.02.2025 [URL: https://trai.gov.in/sites/default/files/2025-02/Recommendations_17022025.pdf]

introduction of a Satellite Communication Network (SCN) Authorisation under Section 3(1)(b) and requests TRAI to provide terms and conditions for Satellite Communication Network (SCN) authorisation including provision of assignment of spectrum for both feeder link as well as user link under such authorisation."

2.77 Thereafter, TRAI, in its response dated 13.08.2025[72] to the DoT's back-reference dated 03.07.2025, conveyed, *inter-alia*, as below:

"2.131.7 In this regard, the Authority has decided to initiate a fresh process of consultation with stakeholders to solicit views on terms and conditions for Satellite Communication Network (SCN) authorisation, including the provision of assignment of spectrum for both feeder link as well as user link under such authorisation. Upon the conclusion of the consultation process, the Authority would provide its recommendations on the matter to the Government.

2.131.8 In case upon the conclusion of the consultation process, the Authority recommends that the spectrum for feeder link and/ or user link should be assigned under SCN Authorisation, the Government may thereafter, if deemed fit, seek the recommendations of the Authority on the terms and conditions for the assignment of spectrum under SCN Authorisation."

2.78 Subsequently, DoT, through a letter dated 29.08.2025, requested TRAI to provide recommendations on the terms and conditions of the proposed Satellite Communication Network (SCN) Authorisation, alongwith terms and conditions relating to the assignment of spectrum in a consolidated form, covering all aspects at once.

[72] The response of TRAI to the Back-Reference dated 03.07.2025 on the Recommendations of TRAI on the 'Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023' is available at the following URL: https://trai.gov.in/sites/default/files/2025-07/TRAI_Response_04072025.pdf]

2.79 In this regard, TRAI, through its letter dated 22.09.2025, requested DoT to clarify as to whether the assignment of spectrum to 'Satellite Communication Network' is covered under the First Schedule of the Telecommunications Act, 2023; and provide information on frequency bands in which spectrum is envisaged to be assigned to entities holding the proposed SCN authorisation.

2.80 In response, DoT through its letter dated 07.10.2025, provided its clarification. A relevant extract from the DoT's letter dated 07.10.2025 is given below:

"2. With reference to para 7, it is submitted that, the First Schedule of The Telecommunications Act, 2023, is a list of entries based on use of the spectrum. Where the use of the spectrum is covered within the scope of an entry in the First Schedule, the assignment of such spectrum may be undertaken by administrative process.

2.1 An entity holding a SCN (Satellite Communication Network) authorisation seeks assignment of spectrum for use that falls within the scope of any of the entries of the First Schedule, it can be assigned spectrum through administrative method. Accordingly, an SCN Authorised Entity seeking to use spectrum for In-flight Maritime Connectivity, may apply for administrative assignment under Entry 14 of the First Schedule. An SCN Authorised Entity seeking to use spectrum for the satellite-based services under Entry 16, such as Very Small Aperture Terminal, Global Mobile Personal Communication by Satellites, National Long Distance, International Long Distance, Mobile Satellite Services in L & S bands, can apply for spectrum assignment under Entry 16.

2.2 It may also be possible that a SCN Authorised Entity without seeking spectrum may enter into sharing agreements with another authorised entity availing of its satellite network (the "partnering entity"), to utilise the spectrum

assigned to such partnering entity for the limited purpose of providing the service of its satellite-based networks.

3. With reference to para 8, at present, spectrum assignments for different kind of telecommunication services are being made in the L, C, Ku and Ka bands. Also, based on the TRAI recommendations dated 09.05.2025, other frequency bands i.e. Q-band and V-band are also being considered for different kind of Telecommunications Services."

2.81 In short, DoT has envisaged that an entity holding the proposed SCN authorisation would have the following options for accessing spectrum:

(a) The SCN authorised entity may seek the assignment of spectrum under the provisions of Section 4 of the Telecommunications Act, 2023 from the Central Government. If an entity holding the proposed SCN authorisation seeks the assignment of spectrum for any usage that falls within the scope of any of the entries of the First Schedule of the Telecommunications Act, 2023, it can be assigned spectrum through administrative method.

(b) The SCN authorised entity may enter into an agreement/ arrangement with a service authorised entity, desirous of availing its satellite communication network ("the partnering entity"), to utilize the spectrum assigned to such partnering entity - for the limited purpose of providing Satellite Communication Network as a Service (SCNaaS) to the partnering entity. [At present, there is no policy framework for enabling such agreements/ arrangements.]

(3) Use of Spectrum in a Typical Satellite Communication Network

2.82 Satellite communication is essentially a form of wireless communication, which uses radio waves. A typical satellite communication network relies on

two major types of links viz. user link, and gateway link. A brief description of user link and gateway link is given below:

(a) User link: The user link is the communication path between the end-user terminal (such as VSAT, satellite phone etc.) and the satellite.

(b) Gateway link: The gateway link[73] is the communication path between a gateway earth station and the satellite. Unlike the user link, which directly connects individual subscribers to the satellite, the gateway link connects the satellite to the core network infrastructure of the service provider. It carries aggregated traffic (internet, telephony, TV signals, etc.) from the operator's terrestrial network to the satellite and *vice versa*.

2.83 In Mobile Satellite Service (MSS), the communication path between a gateway earth station and the satellite is referred to as "feeder link"[74]. In satellite communication industry parlance, the term "gateway link" is often used interchangeably with the term "feeder link". In this consultation paper, for convenience, both the gateway link (in case of FSS) and the feeder link (in case of MSS) will be referred to as 'feeder link'.

2.84 In a typical satellite communication network, established for delivering bi-directional telecommunication services (such as voice telephony, internet access etc.), both feeder link and user link are configured in duplex mode so that data can flow to the satellite and from the satellite at the same time. This is, generally, achieved by using different frequency bands for uplink and

[73] In case of Mobile Satellite Service (MSS), the communication path between a gateway earth station and the satellite is called "feeder link".

[74] As per the ITU-Radio Regulations, the term 'feeder link' has been defined as below:
"feeder link: A radio link from an earth station at a given location to a space station, or vice versa, conveying information for a space radiocommunication service other than for the fixed-satellite service. The given location may be at a specified fixed point, or at any fixed point within specified areas."

downlink to avoid interference. The terms 'uplink' and 'downlink' in the context of satellite communication are outlined below:

(c) Uplink: Uplink is the transmission path of signals from an Earth station to the satellite. Direction: Earth → Satellite.

(d) Downlink: Downlink is the transmission path of signals from the satellite to an Earth station. Direction: Satellite → Earth.

2.85 Thus, satellite communication networks used for the delivery of bi-directional telecommunication services require frequency spectrum for establishing four types of links viz.

(a) User link (uplink)

(b) User link (downlink)

(c) Feeder link (uplink)

(d) Feeder link (downlink).

2.86 The following figure depicts the afore-mentioned links in a typical satellite communication network:

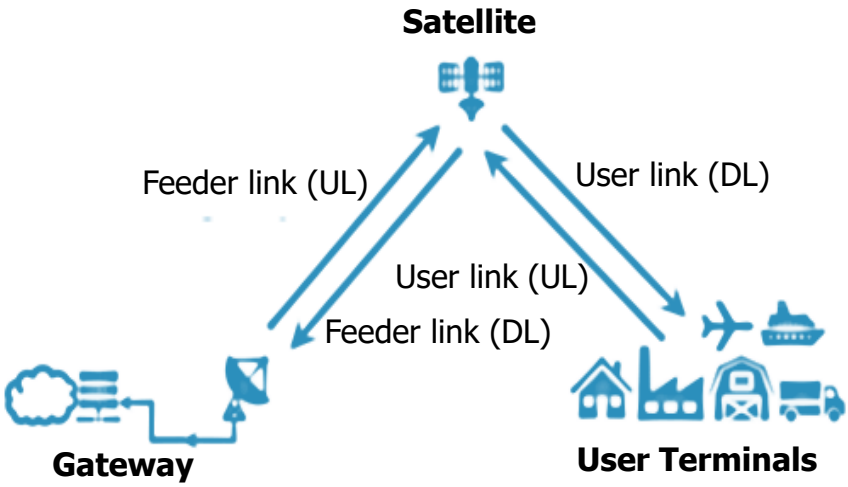

Figure 2.4: Main Communication Links in a Typical Satellite Communication Network

2.87 Amongst satellite-based communication services, Fixed-Satellite Services (FSS) and Mobile-Satellite Services (MSS) are the most prominent services. FSS supports communications from one fixed-point to another fixed-point, such as VSAT, Teleports, etc. MSS supports communications between mobile devices, such as satellite phones. The definitions of these services, as provided by ITU's Radio Regulations 2024[75], are given below:

"1.21 fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services."

"1.25 mobile-satellite service: A radiocommunication service: between mobile earth stations and one or more space stations, or between space stations used by this service; or between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation."

2.88 Both types of satellite-based telecommunication services (FSS and MSS) involve user links and feeder links, and thereby require spectrum in suitable frequency bands for each type of links. Feeder links are fixed in nature and therefore fall under FSS category. On the other hand, type of user terminals determines as to whether the service is FSS or MSS – if the user terminal is

[75] Source: https://www.itu.int/hub/publication/r-reg-rr-2024/

fixed[76], the service falls under the FSS category; else if the user terminal is mobile, the service falls under the MSS category.

2.89 FSS and MSS rely on carefully allocated frequency bands, each chosen to balance coverage, capacity, and resilience against atmospheric effects. Lower frequency bands[77] such as L-band (1-2 GHz) and S-band (2-4 GHz) are often favoured for providing MSS due to their better propagation characteristics. The higher frequency bands[78] such as C-band (4-8 GHz), Ku-band (10-15 GHz) and Ka-band (17-31 GHz) are often used for providing FSS; the higher bands enable high-capacity fixed services but face challenges like rain fade.

2.90 Both types of satellite-based telecommunication services (FSS and MSS) can be provided by using GSO satellites or NGSO (MEO/ LEO) satellites depending on the applications. Often GSO satellites are chosen for stable services in a wide area, while NGSO satellites are chosen for low-latency services.

2.91 At this stage, it would be worthwhile to recapitulate (a) the extant practice with respect to the assignment of spectrum for the provision of satellite-based telecommunication services, and (b) the recent recommendations of TRAI on the matter. The following section provides a summary of these aspects.

2.92 Prior to the enactment of the Telecommunications Act, 2023, the Central Government had been assigning the spectrum in C-band, Ku-band and Ka-

[76] As per the extant policy regime in India, user terminal stations on moving platforms are also permitted for provisioning of connectivity subject to compliance to relevant TEC standard(s) and conditions mentioned therein.
Source: Unified License Agreement

[77] Lower frequencies suffer less from atmospheric attenuation (rain fade, clouds, etc.), making them more reliable for mobile platforms.

[78] Higher frequencies support wider bandwidths, enabling faster data rates.

band for the provision of GSO-based FSS (mainly for VSAT-based CUG applications). Further, for the provision of GSO-based MSS, the Central Government has assigned the spectrum in L-band (for user link) and C-band (for feeder link). At present, the State-owned company - BSNL provides GSO-based MSS by using INMARSAT (currently, a subsidiary of VIASAT Inc.) in India. The services, *inter-alia*, cover government, aviation, and maritime sectors.

2.93 After the enactment of the Telecommunications Act, 2023, DoT sent a reference dated 11.07.2024 to TRAI on the subject- 'Seeking TRAI recommendations on terms and conditions of spectrum assignment including spectrum pricing for certain satellite-based commercial communication services'. Through the reference dated 11.07.2024, DoT expressed that "*[k]eeping in view the provisions of Section 4 and the First Schedule of the Telecommunications Act-2023, in terms of Section 11(1)(a) of TRAI Act 1997, TRAI is requested to provide its recommendations on terms and conditions of spectrum assignment including spectrum pricing while accounting for level playing field with terrestrial access services for the following satellite-based communication services:*

i. *NGSO based Fixed Satellite Services providing data communication and Internet services. In its recommendations, TRAI may take into account services provided by GSO-based satellite communication service providers.*
ii. *GSO/ NGSO based Mobile Satellite Services providing voice, text, data, and internet services."*

2.94 With respect to DoT's reference dated 11.07.2024, TRAI, after stakeholders' consultation, sent its recommendations on 'Terms and Conditions for the

Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services' dated 09.05.2025[79].

2.95 Subsequently, DoT, through a back-reference dated 12.11.2025, shared its views on TRAI's recommendations dated 09.05.2025 and requested TRAI to provide its reconsidered recommendations with respect to a few recommendations/ sub-recommendations. After a careful consideration of DoT's views on the matter, TRAI provided its response on 08.12.2025[80] to DoT's back-reference dated 12.11.2025. At present, TRAI's recommendations dated 09.05.2025 and TRAI's response dated 08.12.2025 are under examination of DoT.

2.96 Salient points of the TRAI's recommendations dated 09.05.2025 (read with the TRAI's response dated 08.12.2025 to DoT's back-reference dated 12.11.2025) are given below:

(a) For assigning frequency spectrum for user links and feeder links for NGSO-based FSS for data communication and Internet service, frequency spectrum in Ku band, Ka band, and Q/V band should be considered.

(b) For assigning frequency spectrum for GSO/ NGSO-based MSS for providing voice, text, data communication and Internet service, the following frequency bands should be considered:

(i) L band and S band for user links; and

(ii) C band, Ku band, Ka band and Q/V band for feeder links.

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[79] TRAI's recommendations dated 09.05.2025 may be accessed at the following URL: https://trai.gov.in/sites/default/files/2025-05/PR_No.36of2025.pdf'

[80] TRAI's response dated 08.12.2025 is available at the following URL: https://trai.gov.in/sites/default/files/2025-12/Recommendation_08122025_0.pdf

(c) Frequency spectrum should be assigned for NGSO-based FSS and GSO/ NGSO-based MSS for a period of up to five years. However, considering the market conditions, the Government may extend it for a further period of up to two years.

(d) Terms and conditions including prices for the spectrum assignment for NGSO-based FSS and GSO/ NGSO-based MSS, recommended through these recommendations, should remain valid for a period of five years from the date of notification of the policy regime by the Central Government, further extendable by a period of upto two years.

(e) Any revision in the terms and conditions including prices for the spectrum assignment for NGSO based FSS and GSO/ NGSO based MSS, notified by the Central Government after a period of five years from the date of notification of the policy regime recommended through these recommendations, should become applicable to all authorised entities including the existing entities.

(f) To control interference, the relevant provisions of ITU-RR should be made applicable to the authorised entities, and other entities which have been authorised by the Central Government.

(g) The frequency spectrum identified by the Central Government for satellite-based telecommunication services in the higher frequency bands such as C, Ku, Ka, and Q/V bands that are assigned on a shared basis, should be assigned with a condition that each Authorised Entity and all other entities which have been authorized by the Central Government to use such shared frequency spectrum, will coordinate among themselves in good faith.

(h) The Government, with the help of Telecom Engineering Center (TEC), should examine the need for prescribing the framework for sharing of spectrum. The framework may include conditions on the maximum equivalent power flux density (EPFD) etc. With a view to nudging the

satellite operators to coordinate among themselves in good faith at the earliest, the Government may also consider introducing a provision for splitting of spectrum as a last resort in line with the provision created by FCC in its 'Spectrum Sharing Rules for Non-Geostationary Orbit, Fixed-Satellite Service Systems' in case two or more NGSO-based FSS satellite systems fail to complete coordination.

(i) For establishment and operation of satellite earth station gateways, the authorised entities should be mandated to coordinate among themselves in good faith.

(j) The DoT, with the help of TEC, should carry out a study to assess the requirement for prescribing coordination distance between two satellite earth station gateways (GSO-NGSO and NGSO-NSGO) operating on the same frequencies. If required, necessary guidelines may be issued.

(k) In the frequency range(s) already identified for IMT such as 42.5-43.5 GHz, the satellite earth station gateways should be permitted to be established at uninhabited or remote locations on case-to-case basis, where there is a less likelihood of IMT services to come up.

(l) With a view to mitigate the risk of scarcity of gateway sites, Satellite Earth Station Gateway(s) should be installed and commissioned within 12 months from the date of permission granted to the authorised entities by the Central Government for the establishment of the Satellite Earth Station Gateway(s):

Provided that if the satellite earth station gateway is installed and commissioned by the Authorised Entity within thirty days of the expiry of the due date for complying with such obligations, the Central Government should consider the same as fulfilment of the obligation, without treating it as a breach of terms and conditions of the authorisation.

(m) The entities authorised to provide satellite-based telecommunication services should be permitted to surrender the right to use frequency spectrum assigned to them before the expiry of the validity period. For this purpose, broad terms and conditions have been recommended.

(n) There should be a defined timeline, not exceeding 30 days from the date of application, within which the frequency spectrum should be assigned to an Authorised Entity for the provision of satellite-based communication services, provided that the in-principle clearance of satellite network has been given by the Central Government. In case of any objection, the same may be communicated to the concerned Authorised Entity within such window of 30 days from the date of application, for necessary action.

(o) Spectrum charges should be levied as:

GSO-based FSS	4% of Adjusted Gross Revenue, subject to a minimum annual spectrum charge of Rs. 3,500 per MHz.
NGSO-based FSS	4% of Adjusted Gross Revenue *Plus* an additional charge of Rs. 500 per subscriber per annum in urban areas, while exempting the rural and remote areas from this additional charge Subject to a minimum annual spectrum charge of Rs. 3,500 per MHz
GSO/ NGSO-based MSS	4% of Adjusted Gross Revenue, subject to a minimum annual spectrum charge of Rs. 3,500 per MHz

(p) Payment terms for spectrum charges:

(i) AGR-based spectrum charges should be paid in accordance with the schedule of payment as finalised by DoT after the consultation process on the draft dated 05.09.2025 of the Telecommunications (Authorisation for Provision of Main Telecommunication Services) Rules, 2025.

(ii) Minimum spectrum charges should be paid in advance at the time of assignment of spectrum and at the beginning of every year. The quarterly/annual adjustment of payment dues shall be made with the minimum spectrum charge for the particular year only.

(iii) Per subscriber charges should be paid by NGSO-based FSS service providers on a quarterly basis equal to $125xN_u$, where N_u refers to the total number of subscribers in urban areas at the end of the previous quarter.

(q) The Government may consider providing a subsidy for NGSO-based FSS user terminals to the targeted user segments in unserved/ underserved regions of rural and remote areas.

2.97 It may be noted that in line with the DoT's request[81] through the reference dated 11.07.2024, TRAI provided its recommendations on both GSO and NGSO-based MSS; with respect to FSS, TRAI's recommendations were mainly

[81] The relevant paragraph of the DoT's reference dated 11.07.2024 is reproduced below:
"4. Keeping in view the provisions of Section 4 and the First Schedule of the Telecommunications Act-2023, in terms of Section 11(1)(a) of TRAI Act 1997, TRAI is requested to provide its recommendations on terms and conditions of spectrum assignment including spectrum pricing while accounting for level playing field with terrestrial access services for the following satellite-based communication services:
i. NGSO based Fixed Satellite Services providing data communication and Internet services. In its recommendations, TRAI may take into account services provided by GSO-based satellite communication service providers.
ii. GSO/ NGSO based Mobile Satellite Services providing voice, text, data, and internet services."

focussed on NGSO-based FSS; as far as GSO-based FSS[82] is concerned, TRAI provided its recommendations on spectrum charges only.

(4) Examination of the matter related to the usage of spectrum under the proposed SCN authorisation

2.98 Through satellite communication networks, the telecommunication services involving bi-directional communication (voice, text, data and internet) can be provided under two categories - Fixed Satellite Service (FSS) and Mobile Satellite Service (MSS).[83] The type of user terminals determines as to whether the service is FSS or MSS. In general, the service falls under FSS category if the user terminal is fixed[84]. If the user terminal is mobile, the service falls under MSS category. In India, at present, the allocation of spectrum for both FSS and MSS is governed by National Frequency Allocation Plan (NFAP) 2025.[85]

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[82] While seeking recommendations on NGSO based FSS, DoT expressed that *"[i]n its recommendations, TRAI may take into account services provided by GSO-based satellite communication service providers."*

[83] ITU's Radio Regulations 2024 provide the following definitions of the terms 'FSS' and 'MSS':
"1.21 fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services."
"1.25 mobile-satellite service: A radiocommunication service: between mobile earth stations and one or more space stations, or between space stations used by this service; or between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation."
Source: https://www.itu.int/hub/publication/r-reg-rr-2024/

[84] As per the extant policy regime in India, user terminal stations on moving platforms are also permitted for provisioning of connectivity subject to compliance to relevant TEC standard(s) and conditions mentioned therein. Source: Unified License Agreement

[85] The Radio Regulations (Edition of 2024) of International Telecommunication Union (ITU) is the foundational text used for drawing up the NFAP-2025.
Source: https://www.dot.gov.in/static/uploads/2026/02/b110cdc386d3a4e41c8483d7ffd7c410.pdf

2.99 Until a few years ago, Mobile Satellite Service (MSS) could be accessed only on specialized devices[86] often referred to as "satellite phones". However, today, MSS satellites can also transmit to and receive from ordinary smartphones. This means one can communicate using ordinary consumer mobile phones via satellites. This development represents the evolution of MSS into mainstream consumer connectivity, moving beyond specialized satellite phones toward seamless integration with everyday mobile devices. When MSS is consumed on cellular mobile handsets, it is often referred to direct-to-device (D2D) service via satellite. In general, D2D service via satellite is primarily designed to fill coverage gaps in remote areas, oceans, or during emergencies, making global connectivity more resilient and accessible.

2.100 In many parts of the world, D2D service via satellite has already become operational. The D2D service via satellite has also been formally recognized by 3rd Generation Partnership Project (3GPP) through the inclusion of non-terrestrial networks (NTNs)[87] in mobile broadband standards[88]. Considering these developments in the use of NTN, TRAI, in its recommendations dated 18.09.2024 on the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023, noted that "*with the technological developments taking place it is now possible for the Access Service providers*

[86] The traditional satellite phones had specialized hardware and appearance as outlined below:
(a) Prominent Antennas: Early and traditional satphones are instantly recognizable by their large, often retractable or external antenna systems, necessary to catch signals from satellites hundreds or thousands of miles away.
(b) Ruggedized Design: They were designed for extreme conditions, built to be water-, shock-, and dust-resistant for explorers, sailors, and military personnel.
(c) Size and Weight: Early models were significantly larger and heavier than contemporary mobile phones, often compared to "bricks" or luggage, though they have since become more portable.

[87] As per 3GPP, non-terrestrial networks (NTN) are networks or segments of networks that use either Uncrewed Aircraft Systems (UAS) operating typically between 8 and 50 km altitudes, including High Altitude Platforms (HAPs) or satellites in different constellations to carry a transmission equipment relay node or a base station.
Source: https://www.3gpp.org/technologies/ntn-overview

[88] 3rd Generation Partnership Project (3GPP) has included NTNs in its mobile broadband standards. These standards define a technical framework for the interoperability between terrestrial and non-terrestrial systems.
The integration of non-terrestrial networks with terrestrial networks by 3GPP is, essentially, aimed at providing ubiquitous connectivity.

to deliver the mobile services through Non-Terrestrial Networks (NTNs). It will complement the terrestrial networks in those areas where the terrestrial networks have not reached." Accordingly, the Authority, through the recommendations dated 18.09.2024, recommended that "*for providing the service, use of Non-Terrestrial Network (NTN) shall be permitted to the Access Service authorised entity and Unified Service authorised entity*." DoT has accepted this recommendation and through the draft Telecommunications (Authorisation for Provision of Main Telecommunication Services) Rules, 2025, DoT has proposed the following provisions under Unified Service authorisation and Access Service authorisation:

(a) Provision under Unified Service authorisation: An authorised entity holding a unified service authorisation may provide the telecommunication services specified under sub-rule (2) or sub-rule (3), as the case may be, through wireline or wireless terrestrial networks, satellite networks including non-terrestrial networks and GMPCS networks, or submarine networks.

(b) Provision under Access Service authorisation: *An authorised entity holding an access service authorisation may provide the telecommunication services specified under sub-rule (2) or sub-rule (3), as the case may be, through wireline or wireless terrestrial networks, satellite networks including non-terrestrial networks and GMPCS network, or submarine networks.*

2.101 As mentioned above, while seeking recommendations from TRAI, DoT, through its letter dated 17.10.2024 conveyed, *inter-alia*, that "*keeping in view the increasing use of NTN (Non terrestrial networks) including satellite communication networks in provisioning of FSS (Fixed Satellite Services) including VSAT services and MSS (Mobile Satellite Services), TRAI may*

consider an authorisation for satellite communication network under Section 3(1)(b) of the Telecommunications Act, 2023…." Further, DoT, in its back-reference dated 03.07.2025 to the TRAI's recommendations dated 17.02.2025, mentioned about the use of NTN by Unified service or Access service to provide supplemental coverage services from space.

2.102 As outlined above, D2D service via satellite is, essentially, a form of Mobile Satellite Service (MSS). It can be delivered by using the spectrum in frequency bands identified for MSS (such as L-band and S-band), or frequency bands identified for IMT (such as 600 MHz band, 700 MHz band, 800 MHz band, 900 MHz band, etc.). Hereinafter, the frequency bands identified for IMT shall also be referred to as "IMT frequency bands". Further, the spectrum in IMT frequency bands shall also be referred to as "IMT spectrum". For permitting D2D service via satellite by using IMT spectrum, it would normally be necessary that MSS allocations are formally made in IMT frequency bands under ITU Radio Regulations, and/ or in National Frequency Allocation Plan (NFAP). As yet, ITU Radio Regulations have not included MSS allocations in IMT frequency bands. In the next Word Radiocommunication Conference (WRC) which will be organized by ITU in November 2027 at Shanghai, the agenda item 1.13[89] will **"***consider studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage, in accordance with Resolution 253 (WRC-23)***"**.[90]

[89] Source: https://www.itu.int/en/ITU-R/study-groups/rcpm/Pages/wrc-27-studies.aspx

[90] Resolution 253 of WRC-2023 included the following studies:
(a) studies on possible allocations to the MSS in the frequency range between 694/698 MHz and 2.7 GHz, taking into account the IMT frequency arrangements addressed in the most recent version of Recommendation ITU-R M.1036;
(b) studies on spectrum requirements and on technical, operational and regulatory matters related to the implementation of the mobile-satellite service for direct connectivity to the IMT user equipment to complement the terrestrial IMT network coverage,

2.103 In short, WRC-27 will consider new allocations to MSS in IMT frequency bands in the ITU-Radio Regulations under the agenda item 1.13, as a means of providing a spectrum management framework for D2D service via satellite by using the spectrum in IMT frequency bands. Having said that, Article 4.4 of ITU-Radio Regulations provides that "*Administrations of the Member States shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations.*". Therefore, in case it is decided to permit D2D service via satellite using the spectrum in IMT frequency bands before ITU makes such an allocation after WRC-27, a satellite system operating in IMT frequency bands for which there is no allocation in the ITU-Radio Regulations may do so under the 'no-interference, no-protection' provisions of Article 4.4 of the ITU-Radio Regulations.

2.104 While the matter relating to the use of spectrum in IMT frequency bands for D2D service via satellite would be decided in WRC-27, some of the countries such as Australia, Canada, New Zealand, United Kingdom (UK), and United States of America (USA) have already developed national regulatory frameworks for enabling D2D service via satellite - under various

(c) studies on sharing and compatibility between incumbent services, including in adjacent frequency bands, ensuring the protection of incumbent services in accordance with the Radio Regulations;
(d) study on possible technical and operational measures to ensure that the stations in the MSS do not cause harmful interference to, or claim protection from, stations operating in the mobile service.

nomenclatures – in select FDD[91] bands of IMT in their respective countries.[92] In general, these regulatory frameworks permit a commercial partnership between a terrestrial cellular mobile operator and a satellite operator, under which, the satellite operator facilitates the terrestrial cellular mobile operator to provide D2D service via satellite to consumers, especially in remote, unserved, and underserved areas. The aim of such partnerships is to enable ubiquitous mobile connectivity to the subscribers of terrestrial mobile operators. A brief description of the regulatory framework for D2D service via satellite by the telecom regulators in the USA, Canada, Australia, New Zealand, and UK is given below:

(a) **USA**: In 2024, the Federal Communications Commission (FCC), USA, established a regulatory framework for Supplemental Coverage from Space (SCS) to enable partnerships between satellite operators and terrestrial mobile operators to offer ubiquitous connectivity directly to consumer handsets using spectrum previously allocated only to terrestrial mobile service.[93] In order to allow satellite communications on the spectrum previously allocated only to terrestrial mobile services, the FCC modified the US Table of Frequency Allocations to authorize secondary Mobile Satellite Service (MSS) operations in certain frequency bands [600 MHz band, 700 MHz band, 800 MHz band, 1850-1915 MHz and 1930-1995 MHz, and 1915-1920 MHz and 1995-2000 MHz][94]. In

[91] FDD is an acronym of frequency division duplexing.

[92] The European Commission (EC) based on the opinion of Radio Spectrum Policy Group (RSPG) has given a mandate to the European Conference of Postal and Telecommunications Administrations (CEPT) to study the feasibility and develop harmonised technical conditions for the use of EU-harmonised frequency bands for the terrestrial provision of electronic communications services (ECS) also by satellite systems providing Direct-to-Device-IMT (D2D-IMT) connectivity.
Source: https://cept.org/files/1412/ECC(25)059_Annex1_Mandate%20to%20the%20CEPT%20on%20D2D-IMT%20in%20EU-harmonised%20ECS%20bands.pdf

[93] Source: https://docs.fcc.gov/public/attachments/DOC-400678A1.pdf

[94] These bands make use of the frequency division duplexing (FDD) scheme in USA.

these frequency bands, the FCC authorized SCS only where one or more terrestrial mobile operators, together holding all licenses of the relevant frequency channel throughout a defined geographically independent area (GIA)[95], lease access to their spectrum rights to a participating satellite operator. Under the FCC's SCS framework, satellite operators and terrestrial mobile operators providing SCS must comply with the existing satellite and terrestrial rules to avoid harmful interference into radio astronomy and related services. FCC also prescribed an entry criteria that satellite operators must meet to operate satellites in the SCS bands.

(b) **Canada**: In 2025, the Innovation, Science and Economic Development (ISED), Canada, established its regulatory framework for Supplemental Mobile Coverage by Satellite (SMCS) by leveraging satellite technology to supplement terrestrial mobile networks.[96] ISED modified the Canadian Table of Frequency Allocation (CTFA) to add a new secondary MSS allocation for the provision of SMCS on a no-protection, no-interference basis in 600 MHz band, 700 MHz band, 800 MHz band, 1850-1915 MHz paired with 1930-1995 MHz, 1710-1755 MHz paired with 2110-2155 MHz, and 1755-1780 MHz paired with 2155-2180 MHz).

(c) **Australia**: In 2024, the Australian Communications and Media Authority (ACMA) issued a regulatory guidance for the operation of IMT satellite

[95] GIAs in USA: (1) the contiguous United States (CONUS); (2) Alaska; (3) Hawaii; (4) American Samoa; (5) Puerto Rico/U.S. Virgin Islands; and (6) Guam/Northern Mariana Islands

[96] Innovation, Science and Economic Development Canada, "Decision on a Policy, Licensing and Technical Framework for Supplemental Mobile Coverage by Satellite," SMSE-001-25, February 2025
The decision is available at the following URL:
https://ised-isde.canada.ca/site/spectrum-management-telecommunications/en/learn-more/key-documents/consultations/decision-policy-licensing-and-technical-framework-supplemental-mobile-coverage-satellite

direct-to-mobile (D2M) service.[97] The salient points of the regulatory guidance for IMT satellite D2M service issued by ACMA are given below:

(a) IMT satellite D2M services must operate through collaboration between a satellite operator, and an existing terrestrial IMT licenses (i.e. a mobile network operator already holding spectrum rights).

(b) IMT satellite D2M services are practical only under Australia-wide spectrum licenses. Suitable spectrum bands identified are 700 MHz band, 800 MHz band, 850/ 900 MHz band, and 2.5 GHz band. These frequency bands are already licensed to mobile network operators and support frequency division duplexing (FDD), which is critical for IMT satellite D2M operations.

(c) Satellite operators and partnering IMT licensees are responsible for due diligence in ensuring coexistence with other spectrum users, and minimization of interference, especially outside spectrum-licensed areas.

(d) **New Zealand**: In New Zealand, Direct-to-Device (D2D) services can be provided in existing mobile frequency bands under the management rights framework administered by Ministry of Business, Innovation and Employment (MBIE). Under this approach, operators are expected to cooperate and coordinate with each other and with adjacent spectrum users to manage and prevent potential interference issues[98].

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[97] Australian Communications and Media Authority, "Regulatory Guide: Operation of an IMT Satellite Direct-to-Mobile Service," September 2024
The regulatory guide is available at the following URL:
https://www.acma.gov.au/sites/default/files/2025-05/Regulatory%20guide_Operation%20of%20an%20IMT%20satellite%20direct-to-mobile%20service_0.pdf

[98] Source: https://www.rsm.govt.nz/licensing/direct-to-device-licensing

(e) **UK**: In February 2026, Ofcom, UK introduced the Wireless Telegraphy (Direct to Device Satellite Communications) (Exemption) Regulations 2026[99]. The purpose of these regulations is to enable mobile phones to connect directly to satellites using spectrum already licensed to mobile network operators (MNOs). This allows users to access connectivity in areas without terrestrial mobile coverage and during network outages. These regulations exempt mobile handsets and SIM-enabled devices from needing individual wireless licences when connecting to authorised satellite Direct-to-Device (D2D) services. To enable the implementation of the authorisation framework, Ofcom decided to allow D2D operation in all frequency division duplex (FDD) and supplementary downlink (SDL) mobile spectrum bands below 3 GHz. However, Ofcom mentioned that some bands, including 1.4 GHz and 2.1 GHz would require further technical analysis and may require consultation prior to authorisation[100]. According to Ofcom's framework, mobile network operators (MNOs) must apply for a variation of their wireless telegraphy licence to provide D2D service via satellite. Once a licence variation is approved, the relevant frequencies are added to the exemption regulations. The framework also prescribes that the wireless telegraphy apparatus must not cause or contribute to any undue interference to any wireless telegraphy, and the wireless telegraphy apparatus must not be airborne. Further, Ofcom has prescribed band-specific power limits for D2D satellite unwanted emissions in mobile downlink spectrum.

[99] Source:https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/consultation-enabling-satellite-direct-to-device-services-in-mobile-spectrum-bands/main-documents/statement-the-final-regulations-for-the-authorisation-of-satellite-direct-to-device-services.pdf

[100] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/consultation-enabling-satellite-direct-to-device-services-in-mobile-spectrum-bands/main-documents/dec2025/statement---enabling-satellite-direct-to-device-connectivity-in-mobile-spectrum-bands.pdf

2.105 India exhibits immense geographical diversity. Broadly, it comprises five regions – (a) the great mountain range, (b) the Indo-Gangetic plains, (c) the desert region, (d) the southern Deccan peninsula, and (e) the islands. The Indo-Gangetic plains, and a large part of the southern Deccan peninsula are fertile and agriculturally productive. The great mountain range has rugged terrain and high altitude. The desert region is arid with sparse settlements. From the perspective of population density, the Indo-Gangetic plains and most part of the southern Deccan peninsula exhibit high population densities; in comparison, the great mountain range, the desert region, and the islands have lower population densities. For the sake of convenience, hereinafter, in the present consultation paper, the great mountain range, the desert region, and the islands will also be referred to as "remote areas".

2.106 Even after three decades since the launch of cellular mobile services in India, the terrestrial coverage of cellular mobile service providers in the rural and remote areas of the country has not been able to match expectations. Due to techno-commercial considerations, cellular mobile service providers do not find it attractive to deploy terrestrial mobile networks in many parts of such regions. Department of Telecommunications, Ministry of Communications, Government of India, through the Digital Bharat Nidhi (earlier known as Universal Service Obligation Fund), supports, *inter-alia*, universal service through promoting access to and delivery of telecommunication services in underserved rural, remote and urban areas.[101] It is a continuing effort and is

[101] In India, the Indian Telegraph (Amendment) Act, 2003 giving statutory status to the Universal Service Obligation Fund (USOF), was passed by the parliament in December 2003. The Universal Service Obligation (USO) Fund was established with the fundamental objective of providing access to "Basic" telegraph services to people in remote and rural areas at affordable and reasonable prices. Subsequently, the Indian Telegraph (Amendment) Act, 2006 was notified on 29.12.2006 to repeal the term "Basic" wherein the scope of USO Fund was widened to provide access to telegraph services (including mobile services, broadband connectivity, and ICT infrastructure creation) in rural and remote areas. As per the information available on the USOF website, USOF has completed several schemes/ projects such as (a) rural wireline broadband scheme, (b) Amarnath project, (c) sanchar shakti project, (d) village public telephone project, (e) mobile infrastructure scheme, (f) rural community phone project, (g) rural direct exchange lines project, (h) solar mobile charging facilities project, (i) mobile tower project.

essentially a work-in-progress.[102] As on date, some parts of rural and remote areas continue to remain unserved or underserved. In this context, the two variants of D2D service viz. (a) D2D service via satellite by using MSS spectrum, and (b) D2D service via satellite by using IMT spectrum may potentially act as enablers of ubiquitous connectivity in the country, particularly in such rural and remote areas.

2.107 For convenience, in the present consultation process, the two service types viz. 'MSS' and 'D2D service via satellite by using MSS spectrum' would be dealt up separately. The service type 'MSS' would mean the provision of MSS on specialized satellite phones, while 'D2D service via satellite by using MSS spectrum' would mean the provision of MSS on ordinary cellular mobile devices.

2.108 While Fixed Satellite Service (FSS) and Mobile Satellite Service (MSS) remain the mainstream radiocommunication services which are provided via satellite, considering the potential usefulness of the D2D service via satellite in providing ubiquitous connectivity in the country, it requires to be deliberated as to whether the SCNs established by the proposed SCN authorised entities should also be permitted to be used for providing D2D service via satellite by using MSS spectrum, and D2D service via satellite by using IMT spectrum. As spectrum management including interference management related issues pertaining to D2D service via satellite by using IMT spectrum would be decided in WRC-27 under Agenda Item 1.13, one may argue that instead of permitting this service at this stage itself, the matter of permitting D2D service via satellite by using IMT spectrum should be examined after considering the

[102] The focus of the schemes and projects of DBN (USOF) has been mostly to provide telecommunication services in inhabited uncovered villages.

outcome of WRC-27. A contrary view could be that considering the global practices (many countries have already permitted the D2D service via satellite by using IMT spectrum), and the usefulness of this service in providing ubiquitous connectivity, this service should be enabled without delay in India; in any case the ITU regulations including those related to cross-border interference management emanating from WRC-27 can be made applicable on the D2D service via satellite by using IMT spectrum in India, prospectively. One could also argue that in case an enabling policy framework for the D2D service via satellite by using IMT spectrum is developed at the country level expeditiously, India could also join a select group of countries which have launched D2D service via satellite using IMT spectrum, and thereby begin reaping the benefits of this new service.

2.109 In this context, the Authority solicits inputs of stakeholders on the following set of questions:

Issues for Consultation:

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

(a) Fixed Satellite Service (FSS);

(b) Mobile Satellite Service (MSS);

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

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

Kindly provide a detailed response with justification.

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.

2.110 With respect to the usage of spectrum under the proposed SCN authorisation, the Authority has taken note of the following aspects:

(a) A typical satellite communication network requires spectrum in two major types of links viz. feeder link and user link. For delivering bi-directional telecommunication services (such as voice telephony, internet access etc.), both feeder link and user link are configured in duplex mode so that data can flow to the satellite and from the satellite at the same time. This is, generally, achieved by using different frequency bands for uplink and downlink to avoid interference.

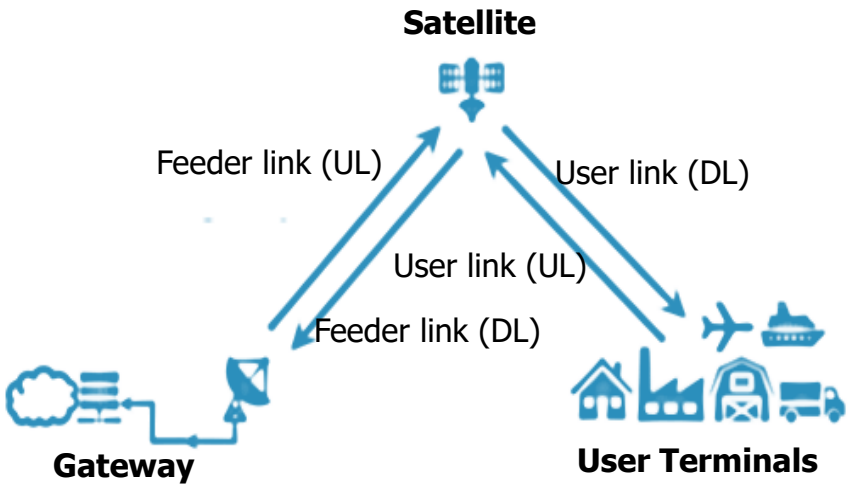

Figure 2.5: Main Communication Links in Satellite Communication Networks

(b) DoT has envisaged that an entity holding the proposed SCN authorisation would have the following options for accessing spectrum:

(i) Option#1: The SCN authorised entity may seek the assignment of spectrum under the provisions of Section 4 of the Telecommunications Act, 2023 from the Central Government.

(ii) Option#2: The SCN authorised entity may enter into an agreement with a service authorised entity ("partnering entity") to utilize the spectrum assigned to such partnering entity.

(c) Potentially, Option#1 and Option#2 as mentioned above, could be applied on the feeder link, and the user link separately. For instance, the SCN authorised entity may prefer to seek assignment of satellite spectrum for the feeder link from the Central Government (i.e. Option#1 for the feeder link) and enter into an agreement with the partnering entity for utilizing the spectrum for the user link held by the partnering entity (i.e. Option#2 for the user link).

2.111 Based on the above, for the usage of spectrum by the proposed SCN authorised entities, *prima facie*, there could be four combinations from the standpoint of holding spectrum for the feeder link, and the user link on SCNs, as outlined below:

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)

2.112 At this stage, it requires to be deliberated as to which of the afore-mentioned combinations should be permitted at the SCNs established by the proposed SCN authorised entities. One may argue in support of the assignment of spectrum to the proposed SCN authorised entities for the feeder link only from the perspective that SCN authorised entities would deploy gateway earth station(s) only and would not serve end users directly. The supporters of the assignment of spectrum for both the feeder link as well as the user link could argue that the proposed SCN authorisation would serve its intended purpose only if SCN authorised entities are made eligible to seek assignment of spectrum for both the feeder link as well as the user link - only then the service authorised entities, intending to provide satellite-based communication services, would be able to focus on provisioning of services without themselves establishing a satellite communication network or acquiring satellite spectrum from the Central Government.

2.113 In this context, the Authority solicits inputs from stakeholders on the following question:

Issue for Consultation:

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

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

Kindly provide a detailed response with justification.

2.114 As mentioned above, the type of user terminals determines as to whether the service is FSS or MSS. In general, if the user terminal is fixed[103], the service falls under the FSS category; if the user terminal is mobile, the service falls under the MSS category. As a special case of MSS, if the user terminal is an ordinary cellular mobile device (smartphone etc.), the service would fall under the category of D2D service via satellite.

[103] As per the extant policy regime in India, user terminal stations on moving platforms are also permitted for provisioning of connectivity subject to compliance to relevant TEC standard(s) and conditions mentioned therein. Source: Unified License Agreement

2.115 As far as the usage of spectrum in the user link of SCNs is concerned, the following scenarios would apply:

(a) If the SCN established by the proposed SCN authorised entity is to be used for providing FSS, the FSS spectrum would be used in the user link of the SCN.

(b) If the SCN established by the proposed SCN authorised entity is to be used for providing MSS, the MSS spectrum would be used in the user link of the SCN.

(c) If the SCN established by the proposed SCN authorised entity is to be used for providing D2D service via satellite by using MSS spectrum, the MSS spectrum would be used in the user link of the SCN.

(d) If the SCN established by the proposed SCN authorised entity is to be used for providing D2D service via satellite by using IMT spectrum, the IMT spectrum would be used in the user link of the SCN.

2.116 In the present consultation process, FSS spectrum would mean the spectrum in the frequency bands allocated for FSS; MSS spectrum would mean the spectrum in the frequency bands allocated for MSS.

2.117 As far as the feeder link is concerned, the feeder link for both FSS and MSS uses FSS spectrum. Accordingly, FSS spectrum would be used in the feeder link of SCNs regardless of whether the SCNs established by the proposed SCN authorised entities are to be used for providing FSS or MSS.[104] As D2D service

[104] In the ITU-Radio Regulations, several frequency bands allocated for FSS such as 5091 - 5150 MHz, 5150 - 5250 MHz, 6700 – 7075 MHz, 15.43 – 15.63 GHz, 19.3 - 19.7 GHz, and 29.1 - 29.5 GHz have specifically been identified for feeder links of the non-geostationary satellites in MSS.
Source: Footnotes 5.444A, 5.447A, 5.458B, 5.511A, 5.523B, and 5.541A of the ITU-Radio Regulations

As per the ITU-Radio Regulations, the term 'feeder link' has been defined as below:
"feeder link: A radio link from an earth station at a given location to a space station, or vice versa, conveying information for a space radiocommunication service other than for the fixed-satellite service. The given location may be at a specified fixed point, or at any fixed point within specified areas."

via satellite using MSS spectrum, and D2D service via satellite using IMT spectrum are, essentially, variants of MSS, FSS spectrum would be used in the feeder link of the SCN in such cases also.

2.118 The following table lists the type of spectrum to be used in SCNs in the feeder link and the user link of SCNs for various service types:

Type of service to be provided to the end users by using SCNs	**Type of spectrum to be used in SCN**	
	In the feeder link	**In the user link**
FSS	FSS	FSS
MSS	FSS	MSS
D2D service via satellite using MSS spectrum	FSS	MSS
D2D service via satellite using IMT spectrum	FSS	IMT spectrum

2.119 In short, three types of frequency spectrum could be used in SCNs established by the proposed SCN authorised entities:

(a) FSS spectrum

(b) MSS spectrum

(c) IMT spectrum

2.120 As outlined above, prior to the enactment of the Telecommunications Act, 2023, the Central Government was assigning the spectrum in C-band, Ku-band and Ka-band for the provision of GSO-based FSS (mainly for VSAT-based

CUG applications). Further, for the provision of GSO-based MSS, the Central Government was assigning the spectrum in L-band (for the user link) and C-band (for the feeder link).

2.121 After the enactment of the Telecommunications Act, 2023, DoT sent a reference dated 11.07.2024 to TRAI. Through the reference dated 11.07.2024, DoT expressed that "*[k]eeping in view the provisions of Section 4 and the First Schedule of the Telecommunications Act-2023, in terms of Section 11(1)(a) of TRAI Act 1997, TRAI is requested to provide its recommendations on terms and conditions of spectrum assignment including spectrum pricing while accounting for level playing field with terrestrial access services for the following satellite-based communication services:*

i. NGSO based Fixed Satellite Services providing data communication and Internet services. In its recommendations, TRAI may take into account services provided by GSO-based satellite communication service providers.

ii. GSO/ NGSO based Mobile Satellite Services providing voice, text, data, and internet services."

2.122 With respect to DoT's reference dated 11.07.2024, TRAI sent its recommendations on 'Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services' dated 09.05.2025[105]. In line with the DoT's request[106] through the reference dated

[105] TRAI's recommendations dated 09.05.2025 may be accessed at the following URL: https://trai.gov.in/sites/default/files/2025-05/PR_No.36of2025.pdf

[106] The relevant paragraph of the DoT's reference dated 11.07.2024 is reproduced below:

"4. Keeping in view the provisions of Section 4 and the First Schedule of the Telecommunications Act-2023, in terms of Section 11(1)(a) of TRAI Act 1997, TRAI is requested to provide its recommendations on terms and conditions of spectrum assignment including spectrum pricing while accounting for level playing field with terrestrial access services for the following satellite-based communication services:

iii. NGSO based Fixed Satellite Services providing data communication and Internet services. In its recommendations, TRAI may take into account services provided by GSO-based satellite communication service providers.

11.07.2024, TRAI provided its recommendations on both GSO-based MSS, and NGSO-based MSS; with respect to FSS, the recommendations were mainly focussed on NGSO-based FSS. As far as GSO-based FSS[107] is concerned, TRAI provided its recommendations on spectrum charges only; a policy framework for the assignment of spectrum for GSO-based FSS already existed.

2.123 As far as the assignment of IMT spectrum is concerned, the Central Government has, since the year 2012, been assigning IMT spectrum through the process of auction to access service providers only. Recently, on 24.02.2026, TRAI, through the recommendations on 'the Auction of Radio Frequency Spectrum in the Frequency Bands Identified for International Mobile Telecommunications (IMT)', has recommended to the Central Government that the eligibility condition for the participation in the forthcoming auction for IMT should be the authorisation to provide access service.

2.124 With respect to the issue relating to the assignment of spectrum to any SCN authorised entity for the feeder link and/ or the user link of its SCN, it would require to be deliberated as to which type of spectrum may be assigned to it. *Prima facie*, FSS spectrum and MSS spectrum may potentially be assigned to the SCN authorised entity. As far as IMT spectrum is concerned, it is noteworthy that, at present, the cellular mobile telephone service, which is provided through IMT spectrum is the flagship service of telecom service sector. The cellular mobile telephone service is consumed by a vast mass of

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iv. GSO/ NGSO based Mobile Satellite Services providing voice, text, data, and internet services."

[107] While seeking recommendations on NGSO based FSS, DoT expressed that *"[i]n its recommendations, TRAI may take into account services provided by GSO-based satellite communication service providers."*

population[108] on ordinary cellular mobile devices (such as smartphones). For the provision of cellular mobile telephone service in India, an entity must obtain access service authorisation under Unified License. As per the extant policy regime in the country, the Central Government assigns IMT spectrum to only those entities which are authorised to provide access service; upon acquiring IMT spectrum, such entities are required to fulfil roll-out obligations also. Based on these considerations, it could be argued that, for the purpose of provisioning D2D service via satellite by using IMT spectrum to end users through SCN, it might not be appropriate to make the proposed SCN authorised entities eligible to seek the assignment of IMT spectrum from the Central Government.

2.125 In case it is decided to make the proposed SCN authorised entities eligible for seeking the assignment of FSS spectrum and/ or MSS spectrum from the Central Government, a policy and regulatory framework for the assignment of FSS spectrum and/ or MSS spectrum to the proposed SCN authorised entities may require to be established.

2.126 As mentioned above, DoT, through its letter dated 07.10.2025, has stated, *inter-alia*, that "if *an entity holding a SCN (Satellite Communication Network) authorisation seeks assignment of spectrum for use that falls within the scope of any of the entries of the First Schedule, it can be assigned spectrum through administrative method*." Accordingly, it would be necessary to ascertain the intended usage before assigning FSS spectrum and/ or MSS spectrum to SCN authorised entities. As the end users would belong to service authorised entities and not SCN authorised entities, it could be argued that

[108] As on 31st January 2026, there were 1,250.89 million cellular mobile telephone subscribers in the country. Source: https://trai.gov.in/sites/default/files/2026-03/PR_No.39of2026.pdf

prior to assigning FSS spectrum and/ or MSS spectrum to SCN authorised entities, the information on service authorised entity(ies) and the intended usage of the spectrum by them is obtained from SCN authorised entities. *Prima facie*, the eligibility criteria for seeking FSS spectrum and/ or MSS spectrum by SCN authorised entities on administrative basis would be the end-usage of the spectrum by the service authorised entities (which seek SCNaaS from SCN authorised entity) should fall in one of items under Schedule I of the Telecommunications Act, 2023.

2.127 In this context, the Authority solicits inputs from stakeholders on the following set of questions:

Issues for Consultation:

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

(a) Spectrum in the frequency bands allocated for FSS

(b) Spectrum in the frequency bands allocated for MSS

(c) Any other?

Kindly provide a detailed response with justification.

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

(a) <u>NGSO-based FSS and GSO/ NGSO-based MSS</u>: Whether in respect of NGSO-based FSS and GSO/ NGSO-based MSS, TRAI's recommendations dated 09.05.2025 on 'Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services' to DoT (read with the TRAI's response dated 08.12.2025 to

DoT's back-reference dated 12.11.2025) should be made applicable to SCN authorised entities with necessary modifications? If yes, what modifications would be required in the terms and conditions for the assignment of spectrum for NGSO-based FSS and GSO/ NGSO-based MSS? If no, what should be the terms and conditions for this purpose?

(b) <u>GSO-based FSS</u>: 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.

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.

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.

2.128 For the sake of convenience, the table, under para 2.111 above, which depicts four possible combinations for holding spectrum for the feeder link and the user link at SCNs is being reproduced below:

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)

2.129 In case based on the present consultation process, it is decided to permit any of the combination No. 2, 3 and 4 mentioned above under the proposed SCN authorisation, an SCN authorised entity would require to enter into an agreement/ arrangement with a service authorised entity ("partnering entity") to utilize the spectrum assigned to such partnering entity; using the spectrum of the partnering entity, the SCN authorised entity would provide SCNaaS to the partnering entity only. Apparently, it would be necessary to establish a policy and regulatory framework for enabling such an agreement/ arrangement between SCN authorised entities and service authorised entities.

2.130 *Prima facie*, the policy and regulatory framework for this purpose would be somewhat nuanced in case of D2D service via satellite (as compared to the

policy and regulatory framework for FSS and MSS). Accordingly, the policy and regulatory framework for the D2D service via satellite would be taken up in the subsequent section.

2.131 In this context, the Authority solicits the views of stakeholders on the following questions:

Issues for Consultation:

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

(i) If yes, what should be the terms and conditions under such a framework?

(ii) If no, in what manner such agreements/ arrangements should be enabled and regulated?

Kindly provide a detailed response with justification.

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.

2.132 In case, based on the present consultation process, it is decided to permit 'D2D service via satellite by using MSS spectrum' through the SCNs established by the proposed SCN authorised entities, a policy and regulatory framework for this purpose may require to be established. Specifically, the regulatory restrictions applicable on the use of satellite phones may have to be made applicable on ordinary cellular mobile devices (such as smartphones etc.) as well. An eco-system related issue may also arise with respect to making available cellular mobile devices equipped with chipsets and antennas capable of satellite connectivity.

2.133 In this context, the Authority solicits inputs from stakeholders on the following question:

Issue for Consultation:

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.

2.134 The use of IMT spectrum for satellite-based D2D service introduces both interference and regulatory challenges. Therefore, in case, based on the

present consultation process, it is decided to permit 'D2D service via satellite by using IMT spectrum' through the SCNs established by the proposed SCN authorised entities, several aspects including those related to spectrum management and interference management would require to be examined. In this regard, it would be essential to establish a robust mechanism for interference management and to enable cooperation among operators to ensure harmonious spectrum usage. Besides, it would also require to be ascertained as to which frequency bands (whether FDD bands, TDD bands, or both type of bands) should be permitted to be used for this purpose.

2.135 At present, for the provision of Access Service[109], the country has been divided into 22 licensed service areas (LSAs) - 19 Telecom Circles and three Metro Areas (Delhi, Mumbai and Kolkata).[110] In other words, the licensed service area for Access Service is at Metro Area/ Telecom Circle level. The Central Government assigns the access spectrum[111] (IMT spectrum) to access service providers (ASPs) through auction – separately in each of the 22 LSAs. As a result, any specific frequency range of IMT spectrum may not necessarily be assigned to a particular ASP in each of the 22 LSAs. For example, the frequency block of 1710.1-1730.1 MHz paired with 1805.1-1825.1 MHz [20

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[109] As per the extant Unified License Agreement, "***ACCESS SERVICES (AS)*** *means telecommunication service provided to subscribers by means of a telecommunication system for the conveyance of voice or non-voice messages through wired or wireless telegraphy on the network of the Access Service Provider. The subscriber shall have identity indicated by a number or any other address approved by the Licensor. The subscriber shall be registered and authenticated by the network of Access Service Provider. Access Service does not cover broadcasting of any voice or non-voice messages. However, Cell Broadcast is permitted only to the subscribers of the service. Scope of Service provided under the Access Service Authorization shall be governed by the terms and conditions as provided in Chapter VIII.*"

[110] Apart from the three Metro Areas, there are following 19 Telecom Circles in India for the provision of Access Service: Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, North East, Odisha, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh (East), Uttar Pradesh (West), and West Bengal

[111] As per the extant Unified License Agreement, "***ACCESS SPECTRUM*** *means the Radio Frequency Spectrum allotted for use to carry voice or non-voice messages from subscriber terminal to the Base Station/designated point of aggregation."*
At present, the Central Government assigns the Access Spectrum through auction in frequency bands identified for IMT in the National Frequency Allocation Plan (NFAP).

MHz paired spectrum] is held by three different ASPs in Punjab LSA, Rajasthan LSA and Gujarat LSA.

2.136 The licensed service area for satellite-based telecommunication services (such Commercial VSAT CUG service) is, at present, at the national level. Under the extant policy regime, the Central Government has been assigning the FSS spectrum and MSS spectrum to satellite-based telecommunication service providers on pan-India basis. Considering the nature of satellite communication networks, *prima facie*, it would be appropriate to keep the service area of SCN authorisation at the national level.

2.137 In case, D2D service via satellite by using IMT spectrum is permitted in the country, an issue may arise with respect to interference management not only at the national borders (with the neighbouring countries) but also at the borders of telecom circles/ metro areas. The issue of interference management at the borders of telecom circles/ metro areas would arise in case the partnering entity of the SCN authorised entity holds the relevant IMT frequency channel (i.e. the IMT frequency channel of the partnering entity to which SCN authorised entity intends to utilize at its SCN for the purpose of SCNaaS) in only a few LSAs and not at the national level; in the remaining LSAs, other ASPs hold the relevant frequency channel.

2.138 This issue came up for deliberation in other countries as well. With a view to address the concern of interference management within the country arising out of the provisioning of D2D service via satellite by using IMT spectrum, the FCC in USA and ACMA in Australia have devised enabling regulatory mechanism/ guidance as outlined below:

(a) **USA**: In the year 2023, the FCC, USA issued the Notice of Proposed Rulemaking (NPRM) in the matter of 'Single Network Future: Supplemental Coverage from Space' for public comment.[112] In the NPRM on Supplemental Coverage from Space (SCS), the FCC stated, *inter-alia*, that "*[i]n this Notice of Proposed Rulemaking (Notice), we propose a novel framework for SCS that would provide coverage to a terrestrial mobile service licensee's subscribers operating in underserved and/or unserved areas within a terrestrial mobile service licensee's license area, only through a collaboration between an existing NGSO operator and a terrestrial mobile service licensee, involving transmissions between space stations and mobile end-user devices on spectrum that is currently allocated and licensed exclusively on a terrestrial basis. Specifically, given the complexity of this undertaking, and particularly due to technical considerations, we confine our initial proposal to spectrum and locations where (1) there is only a single terrestrial entity that holds, either directly or indirectly, all co-channel licenses for the relevant frequencies in a given geographically independent area (GIA), such as CONUS; and (2) there are no primary, non-flexible-use legacy incumbent operations (whether federal or nonfederal) in the band. As discussed below, we also seek comment on potentially extending our proposed framework to a range of alternative licensing scenarios that do not currently meet our proposed entry criteria, including instances where multiple co-channel terrestrial licensees are authorized in a given GIA."* After the public consultation on the matter, the FCC issued its report and order dated 22.02.2024 on Single Network Future: Supplemental Coverage from Space [113]. Through

[112] Source: https://docs.fcc.gov/public/attachments/FCC-23-22A1.pdf

[113] Source: https://docs.fcc.gov/public/attachments/DOC-400678A1.pdf

the report and order dated 22.02.2024, the FCC stated that "*we authorize SCS only where one or more terrestrial licensees—together holding all licenses on the relevant channel throughout a defined geographically independent area—lease access to their spectrum rights to a participating satellite operator, whose part 25 license reflects these frequencies and the geographically independent area in which they will offer SCS.*"

(b) **Australia:** Through the regulatory guide on 'Operation of an IMT satellite direct-to-mobile service' (September 2024)[114], ACMA stated that "*[g]iven the broad coverage provided by satellite services, our view is that operation of an IMT satellite direct-to-mobile service in Australia is only practical where there is an Australia-wide spectrum licence. In these bands, a satellite operator providing an IMT satellite direct-to-mobile service for all practical purposes will only need to coordinate with a single licensee responsible for managing coordination of services within the licensed band across Australia. This means that there are no geographic boundary issues to manage or multiple licensees for the satellite operator to consider.*"

2.139 In the context of LSA-wise assignment of IMT spectrum to access service providers in India, a question arises as to what regulatory framework should be established for ensuring interference free operation of D2D service via satellite by using IMT spectrum within the country. One may take a conservative approach and argue that 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

[114] Source: https://www.acma.gov.au/publications/2024-09/guide/regulatory-guide-operation-imt-satellite-direct-mobile-service

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. On the other hand, one may contend that 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 permit the usage of their IMT frequency channel by the SCN authorised entity at its SCN for the purpose of providing SCNaaS.

2.140 In this context, the Authority solicits inputs from stakeholders on the following question:

Issue for Consultation:

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

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

in what manner such arrangements should be enabled and regulated?

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

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

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

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

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

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

(iii) Any other method?

Kindly provide a detailed response with justification.

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.

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.

2.141 The following chapter examines the issues related to financial conditions and spectrum charges applicable under the proposed SCN authorisation.

CHAPTER III: EXAMINATION OF ISSUES RELATED TO SPECTRUM CHARGES AND OTHER FINANCIAL CONDITIONS

A. Background

3.1. Department of Telecommunications (DoT) vide its letter dated 17.10.2024 requested the Authority to consider an authorisation for Satellite Communication Network under Section 3(1)(b) of the Telecommunications Act 2023 along with the following aspects:

(a) Terms and conditions relating to such authorisation;

(b) Provision of assignment of spectrum for both feeder link as well as user link under such authorisation; and

(c) Service area of such authorisation.

3.2. In the said letter dated 17.10.2024, DoT has envisaged that the authorisation for satellite communication network under Section 3(1)(b) of the Telecommunications Act 2023 may be used to provide services to entities authorised under Section 3(1)(a) of the Telecommunications Act, 2023.

3.3. The Authority in its recommendations dated 18.09.2024 on 'Framework for Service Authorisations to be granted under the Telecommunications Act, 2023' provided recommendations on a range of service authorisations, including 'Satellite-based Telecommunication Service Authorisation'. In the said recommendation, the Authority examined the existing licensing framework for provision of satellite-based communication services under the Unified License regime. As mentioned in the said Recommendations, under the Unified License, two separate authorisations existed for the provision of satellite-based communication services, namely Global Mobile Personal Communication by

Satellite (GMPCS) authorisation and Commercial VSAT Closed User Group (CUG) authorisation. The GMPCS authorisation permits the authorised entity to provide, inter alia, satellite-based telephony services and data services, including public telecommunication services such as public telephony and public Internet services. The Commercial VSAT CUG authorisation permits the authorised entity to provide satellite-based data connectivity between various sites of a user within the territorial boundary of India, i.e., connectivity within a Closed User Group (CUG), as well as backhaul connectivity to access service providers. Further, under the scope of the VSAT CUG authorisation, an authorised entity may, after obtaining an Internet Service Provider (ISP) license, use the same hub station and VSAT (remote station) infrastructure to provide Internet services to subscribers; in such cases, the VSAT remote station may function as a distribution point to provide Internet services to multiple independent subscribers. The services permitted under the two authorisations are largely mutually exclusive.

In this regard, the Authority recommended that the scope of the existing GMPCS service authorisation and Commercial VSAT CUG service authorisation should be merged into a single authorisation, namely 'Satellite-based Telecommunication Service Authorisation', under the Telecommunications Act, 2023.

3.4. The Authority had also provided its Recommendations dated 17.02.2025 titled "Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023", in which recommendations regarding the Satellite Earth Station Gateway (SESG) authorisation were also dealt. The SESG authorised entities were placed under Section 3(1)(b) of the Telecommunications Act, 2023. The broad scope of the SESG Provider Authorisation was to provide SESG infrastructure to the entities authorised

under Section 3(1)(a) of the Telecommunications Act, 2023 and permitted to use satellite media within the scope of their services. The baseband equipment to be installed at SESGs was to be owned by the eligible Service Authorised entity interworking with the SESG Provider authorised entity. However, the SESG Provider authorised entity was permitted to install the baseband equipment at its SESGs *on behalf of* the eligible service authorised entities. The satellite spectrum (gateway-side spectrum as well as user-side spectrum) was to be assigned only to the eligible service authorised entities and not to SESG Provider authorised entities. However, for configuration and provisioning purposes, the SESG Provider authorised entity was permitted to utilise the spectrum of its partnering Service Authorised entity on its SESGs. Such configuration and provisioning were to be carried out on behalf of the partnering Service Authorised entity, while the right to use the spectrum was to remain with the partnering Service Authorised entity. The SESG Provider authorised entity was also permitted to connect its SESGs with its Points of Presence (PoPs) in India through an optical fibre cable (OFC) system.

3.5. In this regard, the Authority, in its Recommendations on the 'Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023 dated 17.02.2025', also concluded that 'Satellite-based Telecommunication Service Authorisation' as recommended by the Authority in its recommendation dated 18.09.2024 and the 'Satellite Earth Station Gateway (SESG) Authorisation' as recommended by the Authority in present recommendations dated 17.02.2025, adequately covered the permissible options for the delivery of satellite-based telecommunication services. Accordingly, TRAI stated that *"there is no need for introducing any additional authorisation for satellite communication network under the Telecommunications Act, 2023, at this stage"*. Further, TRAI also stated that

at the principle level, authorised spectrum should be granted to service authorised entities only and not to network authorised entities.

3.6. Subsequently, a back reference dated 03.07.2025 was received from DoT on Recommendations on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023. This *inter-alia* stated the following:

" 4.6 Further, the Telecommunication Act,2023 does not restrict spectrum assignment solely to entities under section 3(1)(a), and limiting it as such may constrain future policy flexibility. Allowing the flexibility of obtaining spectrum by authorised entity either under 3(1)(a) or 3(1)(b) (Service or Network) will enable regulatory framework to meet the requirement of future network and evolving technology in this space.

….

4.8 Hence, to avoid the regulatory gap - given that the Government has not accepted the Satellite-based Telecommunication Service Authorisation under Section 3(1) (a) - the Government proposes the introduction of a Satellite Communication Network (SCN) Authorisation under Section 3(1)(b) and requests TRAI to provide terms and conditions for Satellite Communication Network (SCN) authorisation including provision of assignment of spectrum for both feeder link as well as user link under such authorisation."

3.7. In response to the above, the Authority is of the view that a fresh process of consultation should be initiated to solicit views of stakeholders on terms and conditions for Satellite Communication Network (SCN) authorised entities, including the options of assignment of spectrum for both feeder link or gateway link (uplink and downlink) as well as user link (uplink and downlink) under such authorisation as discussed in Chapter II above.

3.8. Further, DoT vide its letter dated 29.08.2025, requested TRAI to provide its recommendations under Section 11(1) (a) of the TRAI Act, 1997 on the terms and conditions for Satellite Communication Network (SCN) authorisation including provision of assignment of spectrum for both feeder link as well as user link under such authorisation and service area under such authorisation.

3.9. With respect to the DoT letter dated 29.08.2025, the Authority in a letter dated 22.09.2025 requested DoT to clarify as to whether the assignment of spectrum to 'Satellite Communication Network' is covered under the First Schedule for the Telecommunications Act, 2023. DoT through the Letter dated 07.10.2025 clarified that an SCN Authorised entity can be assigned spectrum through administrative method provided the use of spectrum falls within the scope of any of the entries of the First Schedule.

3.10. Further, based on the information provided by the DoT in the letter dated 07.10.2025 and subsequent discussions in Chapter II, the Satellite Communication Network Authorisation, envisaged by DoT, could enable an entity to perform, *inter-alia*, the following activities:

(a) The authorised entity may obtain the necessary satellite resources (such as transponder bandwidth) from an authorised satellite operator[115].

(b) The authorised entity may establish gateway earth station(s) to communicate with the satellite.

(c) For establishing feeder links [for communication between gateway earth stations and satellite(s)] and/ or user links [for communication between user earth stations and satellite(s)] in its satellite communication network, the authorised entity may seek assignment of spectrum[116] from

[115] The satellite operator should have obtained permission from IN-SPACe to enable provisioning of its capacity in India for providing communication services. [URL: https://www.inspace.gov.in/inspace?id=inspace_authorizations]

[116] A relevant extract of Section 4 of the Telecommunications Act, 2023 is given below:

the Central Government. Alternatively, the authorised entity may enter into an agreement with a Service Authorised entity, desirous of availing its satellite communication network ("the partnering entity") to utilize the spectrum assigned to such partnering entity for the limited purpose of providing Satellite Communication Network as a Service (SCNaaS) to the partnering entity.

(d) The authorised entity may provide SCNaaS to authorised service providers on commercial terms. For this purpose, the authorised entity may provide an interface to authorised service providers to enable them to utilize its satellite communication network.

(e) Under the SCN authorisation, the authorised entity may not provide telecommunication services directly to users.

3.11. The various options or modes of operations discussed under Chapter II, specifically at Para 2.110-2.112, including agreements between an SCN Authorised entity and a Service Authorised entity for provisioning of SCNaaS to the Service Authorised entity, towards providing satellite-based communications service viz. FSS or MSS or D2D to the end user by the Service Authorised entity, will inform the discussion on financial conditions for SCN authorised entities. The discussion about financial conditions in subsequent paragraphs pertains to the following categories:

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4. (1) The Central Government, being the owner of the spectrum on behalf of the people, shall assign the spectrum in accordance with this Act, and may notify a National Frequency Allocation Plan from time to time.
(2) Any person intending to use spectrum shall require an assignment from the Central Government.
(3) The Central Government may prescribe such terms and conditions as may be applicable, for such assignment of spectrum, including the frequency range, methodology for pricing, price, fees and charges, payment mechanism, duration and procedure for the same.
(4) The Central Government shall assign spectrum for telecommunication through auction except for entries listed in the First Schedule for which assignment shall be done by administrative process.

(a) Regulation and treatment of charges transacted between SCN Authorised entity & Service Authorised entity under service agreements for provision of SCNaaS by SCN entity to Service entity;
(b) Definition of GR/ApGR/AGR;
(c) Spectrum Charges and payment terms & conditions; and
(d) Other financial conditions including Minimum Equity & Networth requirements, Entry Fees, Authorisation Fees and payment terms & conditions, Application processing Fees, Bank Guarantees for SCN authorisation.

The following section discusses terms & conditions of overall service agreements between an SCN Authorised entity and a Service Authorised entity, including the transacted charges between the two, as well as the possible arrangements for utilisation of spectrum.

B. Service agreements including spectrum utilisation arrangements between the SCN authorised entities under section 3(1)(b) and Service authorised entities under section 3(1)(a)

3.12. In line with the discussion in Chapter II, the proposed SCN Authorised entity would provide SCNaaS to a Service Authorised entity for the further provisioning of satellite-based communication services, such as FSS or MSS or D2D, to end users. As outlined in Chapter II, D2D satellite service is envisaged as a supplemental coverage service, particularly aimed at remote and far-flung areas to enable universal connectivity. Furthermore, two variants of D2D service may be possible, namely:
(a) D2D service via satellite by using MSS spectrum, and
(b) D2D service via satellite by using IMT spectrum.

In Chapter II, it has been clarified that the service type 'MSS' would mean the provision of MSS on specialized satellite phones, while 'D2D service via satellite by using MSS spectrum' would mean the provision of MSS on ordinary cellular mobile devices. Essentially, D2D service could be possible using either MSS Spectrum or IMT spectrum in the User link, with Feeder link being provided through FSS spectrum.

Q9 and Q10 in Chapter II deal with whether the SCN Authorised entity can use its network to provide SCNaaS to a Service Authorised entity for further provisioning of FSS, MSS, D2D services, and 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.

3.13. Based on discussion at Para 2.110 to 2.112, there are the following options for spectrum utilisation by a SCN Authorised entity for provisioning SCNaaS to a Service Authorised entity. Q11 in Chapter II also seeks stakeholders' comments on which or all the options for spectrum assignment & utilisation should be allowed for the SCNs operated by the SCN Authorised entities. These options are not mutually exclusive, and these modes of operation could be existing simultaneously:

Option 1 (Combination 1 of Para 2.111 for provision of FSS/MSS): The SCN Authorised entity may seek assignment of satellite spectrum under the provisions of Section 4 of the Telecommunications Act, 2023 from the Central Government. If an entity holding the proposed SCN authorisation seeks the assignment of satellite spectrum for any usage that falls within the scope of any of the entries of the First Schedule of the Telecommunications Act, 2023, it can be assigned such spectrum through administrative method. Under this scenario of operation, the assignment covers satellite spectrum for both

feeder link and user link to the SCN Authorised entity for providing SCNaaS to a Service Authorised entity under Section 3(1)(a). Thus, in this mode of operation, there is no agreement with the Service Authorised entity for the purpose of utilisation of satellite spectrum, and the arrangement between the two only covers provisioning of SCNaaS.

Option 2 (Combination 2 of Para 2.111 for provision of FSS/MSS): The SCN Authorised entity may be depending on the Service Authorised entity as a partner to bring in the satellite spectrum required for either the user link or the feeder link. Under this Option 2, the SCN Authorised entity may prefer to seek assignment of satellite spectrum for feeder link from the Central Government, and enter into an agreement with the partnering entity for utilizing the satellite spectrum for user link held by the partnering entity. Under this scenario of operation, the satellite spectrum assigned to the partnering entity is utilised for user link, for provisioning SCNaaS to the partnering entity under Section 3(1)(a). Thus, in this mode of operation, there is an arrangement with the Service Authorised entity (partnering entity) for the purpose of utilisation of satellite spectrum assigned to the partnering entity for the user link, as well as an overall agreement for provisioning of SCNaaS to the Service Authorised entity.

Option 3 (Combination 3 of Para 2.111 for provision of FSS/MSS): Under this option, the SCN Authorised entity may prefer to seek assignment of satellite spectrum for user Link from the Central Government, and enter into an agreement with the partnering entity for utilizing the satellite spectrum for feeder link held by the partnering entity. Under this scenario of operation, the satellite spectrum assigned to the partnering entity is utilised for the feeder link, for provisioning SCNaaS to the partnering entity under Section 3(1)(a). Thus, in this mode of operation, there is an arrangement with the Service

Authorised entity (partnering entity) for the purpose of utilisation of satellite spectrum assigned to the partnering entity for the feeder link as well as an overall agreement for provisioning of SCNaaS to the Service Authorised entity.

Option 4 (Combination 4 of Para 2.111 for provision of FSS/MSS): The SCN Authorised entity may not seek assignment of satellite spectrum for any of the links from the Central Government, but enters into an agreement with a Service Authorised entity ("partnering entity") under Section 3(1)(a) intending to avail its satellite communication network, and utilize the satellite spectrum assigned to such partnering entity for the limited purpose of providing Satellite Communication Network as a Service (SCNaaS) to the partnering entity. Under this scenario of operation, the satellite spectrum assigned to the partnering entity is utilised for both feeder link and user link to provide SCNaaS to the partnering entity under Section 3(1)(a). Thus, in this mode of operation, there is an arrangement with the Service Authorised entity (partnering entity) for the purpose of utilisation of satellite spectrum assigned to the partnering entity, in both user link and feeder link, as well as an overall agreement for provisioning of SCNaaS to the Service Authorised entity.

Option 5 (For provision of D2D service using MSS/ IMT Spectrum in the User Link): As discussed in Chapter II, the Authority is examining the suitability of recommending the permission to provide satellite based Direct-to-device (D2D) communications services. The same has been discussed to be provided using MSS spectrum and/ or IMT spectrum.

5a (For provision of D2D service using MSS spectrum in the user link): In this scenario, the SCN Authorised entity may enter an arrangement with a Service Authorised entity for the purpose of provisioning of SCNaaS to the service entity, for further provisioning of D2D service by the Service Authorised entity. Here, the feeder link would utilise satellite spectrum in FSS bands, assigned to either the SCN Authorised entity or the service entity, as the case may be. The user link would utilise MSS spectrum (L & S bands), which again could be assigned to either the SCN Authorised entity or the service entity, for enabling provision of D2D satellite-based communication services to the end user. Thus, under this scenario, there is an arrangement between the SCN authorised entity & Service authorised entity to provide SCNaaS, which may or may not include provisions for utilising spectrum assigned to the service entity. The spectrum assignment and utilisation scenario could be similar to any of the options discussed at Options 1 to 4 above.

5b (For provision of D2D service using IMT spectrum in the User Link): In this scenario, SCN Authorised entity may enter into an agreement with the partnering entity, which intends to avail its satellite communication network, to utilize the IMT spectrum assigned to such partnering entity in the user link for the limited purpose of providing SCNaaS to the partnering entity, for further provisioning of D2D service by the partnering Service Authorised entity. This Service Authorised entity is likely to be an Access Service Provider, since, currently, IMT spectrum bands for providing access service to consumers have been acquired by these entities through participating in the spectrum auctions. Under this scenario of operation, the IMT spectrum assigned to the partnering entity is utilised for the user link, while the SCN Authorised entity would use satellite spectrum, either assigned to itself or to the same partnering entity, for the feeder link. Thus, in this mode of operation,

there is an arrangement with the Service Authorised entity (partnering entity) for the purpose of utilisation of IMT spectrum assigned to the partnering entity in the user link, as well as an overall agreement for provisioning of SCNaaS to the Service Authorised entity. The spectrum assignment and utilisation scenario could be similar to any of the Options 1 and 2 discussed above.

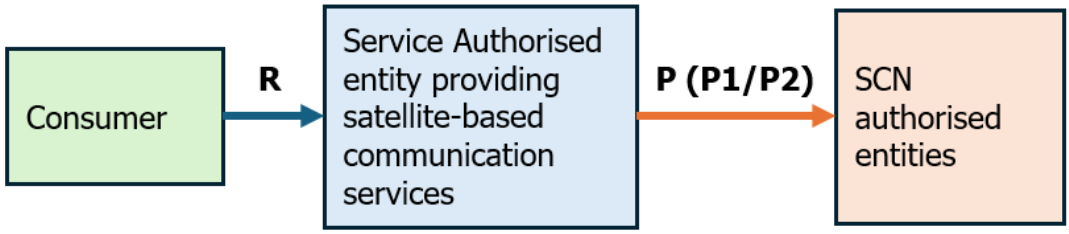
3.14. To summarise, under Options 1 to 4, satellite spectrum assigned either to the SCN Authorised entity or to the Service Authorised entity, as the case may be, in frequency bands allocated for Fixed Satellite Service (FSS) or Mobile Satellite Service (MSS) in the National Frequency Allocation Plan (NFAP) will be used for establishing feeder links and/or user links for the provision of SCNaaS by SCN Authorised entity and satellite-based telecommunication services by Service Authorised entity.

Under Option 5a, while the feeder link would utilise satellite spectrum in FSS bands, assigned to either the SCN Authorised entity or the partnering entity, as the case may be, the user link would utilise MSS spectrum assigned to either the SCN Authorised entity or the partnering entity. Under Option 5b, the feeder link would utilise satellite spectrum in FSS bands, assigned to either the SCN Authorised entity or the partnering service authorised entity, while the user link would utilise IMT spectrum assigned to the partnering entity for enabling provision of D2D satellite-based communication service to end users.

Further, as mentioned above, these options or modes of operation are not mutually exclusive and could be operational under different arrangements with partnering entities simultaneously for any given SCN Authorised entity.

3.15. Though there are multiple modes of operation and partnering arrangements between an SCN and a Service entity, these arrangements and charges transacted between the SCN Authorised entity and the Service Authorised

entity (partnering entity) are basically for provision of SCNaaS by SCN Authorised entity to Service authorised entity and could be represented by a simple illustration below for financial purposes:



- R denotes the revenue earned by the service authorized entity providing satellite-based communication services to end users under Section 3(1)(a)

- P (P1 for Option 1,2,3,4 and P2 for Option 5a & 5b) denotes the charges paid by the partnering Service Authorised entity under section 3(1)(a) to the SCN Authorised entity under Section 3(1)(b) for providing Satellite Communication Network as a Service (SCNaaS) and use of network and spectrum in the feeder link and/or user link (as the case may be)

Figure 3.1: Depiction of arrangement between SCN Authorised entity & Service Authorised entities

3.16. As depicted in the above figure, the revenue flow in the satellite communication ecosystem would involve revenue (R) earned from end users by the Service Authorised entity for the provision of satellite-based communication services under Section 3(1)(a) of the Telecommunications Act, 2023. The Service Authorised entity (partnering entity), in turn, would pay certain charges (P1/P2) to the SCN Authorised entity under Section 3(1)(b) for receiving Satellite Communication Network as a Service (SCNaaS). Under all options above, the Service Authorised entity earns revenue (R) from the provision of satellite-based communication services to end users and, in turn, pays charges (P) to the SCN Authorised entity for provisioning of SCNaaS. These charges denoted as P1 (for Options 1, 2, 3 & 4) and P2 (for Option 5a & 5b) represent the charges payable by the Service Authorised entity

(partnering entity) to the SCN Authorised entity for provisioning of SCNaaS, including the use of satellite communication network infrastructure and associated spectrum resources.

3.17. The quantum of such charges (P) could be determined through mutual agreement(s) between the SCN Authorised entity and the Service Authorised entity (partnering entity). The charges could vary depending on terms of agreement between the SCN Authorised entity and the Service Authorised entity (partnering entity), likely including various service parameters contained in Service Level Agreements (SLAs) and could also include the extent to which the SCN Authorised entity contributes its own spectrum and/or utilises the spectrum assigned to partnering entity for providing SCNaaS.

Further, following the principle of avoidance of double charging of same revenue for AGR-based levies (such as Authorisation/ License Fees & Spectrum Charges), the Gross Revenue (GR)/ ApGR (Applicable Gross Revenue) of the Service Authorised entity could be allowed to be reduced by P (R-P) to arrive at Adjusted gross revenue (AGR), and the same P could be added to the Gross Revenue (GR) of the SCN Authorised entity.

3.18. The arrangements between SCN authorised entities and service authorised entities for provisioning of SCNaaS to the Service Authorised entity, for providing FSS/MSS service to the end users, have been discussed in detail in Para 2.64-2.67 of Chapter II leading to Q6, as well as Para 2.110-2.112 of Chapter II leading to Q11 and Para 2.110 to Para 2.129 leading to Q 16 & Q17.

The arrangements between a SCN Authorised entity & Service Authorised entity, which involves utilisation of either MSS spectrum or IMT Spectrum for

provisioning of SCNaaS to the Service Authorised entity, for providing D2D service to the end users, have been dealt at Para 2.132 to Para 2.139 of Chapter II leading to Q18, Q19, Q20 & Q21. The D2D service is essentially a MSS, as mentioned in Chapter II. However separate questions have been posed regarding the same due to the novelty and prospects of the D2D service in India.

3.19. Based on the above discussions, two broad issues arise from a financial regulatory perspective: -

From the perspective of ensuring equal treatment and non-discrimination in the agreement between the SCN authorized entities and the service authorized entities for provision of SCNaaS, the need for regulation of such agreements may be examined further.

First, it is necessary to assess whether there is a need to regulate agreements and the charges exchanged between a Service Authorised entity and the SCN Authorised entity. If such a need is established, the basis for prescribing the quantum or ceiling limits of transacted charges as well as other parameters of mutually agreed terms and conditions of the agreements between SCN authorised entities and service authorised entities.

Second, the appropriate treatment of these charges in determining GR/ApGR/AGR for the purpose of levy of Authorisation Fees and Spectrum Charges for both entities.

3.20. In this context, the past recommendations, extant licensing regime as well as Draft Rules under Telecommunications Act, 2023, could be referred to from

the perspective of appropriate regulation and treatment of such charges. Accordingly, the following are dealt with below:

A. An analogy of these charges transacted between a Service Authorised entity and SCN Authorised entity can be drawn with the charges paid by Virtual Network Operators (VNOs) under the UL (VNO) license to Network service operators (NSOs). Though these charges are of nature of infrastructure/network costs, they have been allowed as deductions for the VNO operators, under virtually all the authorisations under the UL (VNO) license. The item of deduction as per the License Agreement is mentioned below:

Charges paid to NSOs towards Bulk/Wholesale bandwidth, leased line and bandwidth charges, minutes and SMSs. However, these charges should be governed by a written agreement, a copy of which must be provided along with the proof of actual payment for the deduction to be allowed

Thus, these network/ infrastructure cost paid by VNO to parent NSO are allowed as deductions for the VNO, for the purpose of determination of AGR for the VNO.

B. Further, in the Recommendations on Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG) dated 29.11.2022, the following is mentioned regarding these charges:

"2.24 Specifically, in respect of License Fee, most of the stakeholders have opined that a notional annual License Fee of Re. 1 (like IFMC authorization) should be charged from SESG licensees. In support of

their viewpoint, they have stated that the telecommunication services to customers will be provided by the service licensees and not by the SESG licensees, and the service licensees are already paying License Fee as a percentage of AGR; therefore, License Fee should not be double charged. On the other hand, a few stakeholders have suggested that License Fee payable by SESG licensees should be 8% of AGR, at par with the License Fee payable under Unified License; the charges paid by service licensees to the SESG licensee may be treated as pass-through charges for the purpose of computing License Fee payable by the service licensees to avoid double taxation.

2.32 Further, the Authority observed that the SESG licensees will render satellite-based resources to service licensees. Using the satellite-based resources provided by the SESG licensees, service licensees will provide communication services to the customers. The SESG licensees themselves will not provide communication services directly to the end users. The service licensees, to whom SESG licensees will provide satellite-based resources, are already governed by Adjusted Gross Revenue (AGR) based License Fee regime. Therefore, it would be desirable to keep the License Fee payable by SESG licensees as minimum possible.

2.33 Considering the comments of stakeholders and further analysis in respect of the financial conditions of SESG License, the Authority recommends that…

(b) License Fee: As the SESG licensees will not provide any service directly to end customers, only a token License Fee of Re. 1 per annum shall be levied on the SESG License"

Thus, in the above-mentioned Recommendations, the License Fee for SESG authorised entities has been kept at a nominal Re 1. The treatment

of charges paid by service licensees to SESG licensees for the purpose of determination of GR/ApGR/AGR is not explicitly dealt with in the said Recommendations.

C. In its Recommendations dated 17.02.2025, where the Authority dealt with terms & conditions of Network Authorisations to be granted under new Telecommunications Act, 2023, the following is mentioned:

" 2.267 The Authority is cognizant that in case two networks offer substitutable services, i.e., share a horizontal relationship between them, a network operator has the incentive to foreclose or marginalize its opponent network through various methods including high interconnection fees. Such conduct may result in scant supply or high prices of services, to the detriment of consumers. In such situations, regulators often mandate the network operators to publish a regulator-approved reference interconnection offer (RIO) on their websites, which forms the basis of all interconnection agreements with other network operators. On the other hand, in case two networks are vertically related, interconnection between them is mutually profitable and therefore, generally, does not require any regulatory intervention.

2.268 The Authority notes that the entities authorised under Section 3(1)(a) of the Telecommunications Act, 2023 would share a vertical relationship with the authorised entities under Section 3(1)(b) of the Telecommunications Act 2023 and avail telecommunication-network-as-a-service from them. Accordingly, the Authority is of the view that there is no need to mandate a reference agreement between authorised entities establishing, operating, maintaining or expanding the telecommunication network, and authorised entities providing telecommunication services, at this stage.

Para 2.269 Considering the comments of stakeholders and its own analysis, the Authority recommends that the interconnection between authorised entities establishing, operating, maintaining, or expanding the telecommunication network under section 3(1)(b) of the Telecommunications Act 2023, and the authorised entities providing telecommunication services under section 3(1)(a) of the Telecommunications Act 2023 should be left to mutually agreed terms between them, at this stage. "

Here, regarding regulation of the charges transacted between the Network and Service Entities and related agreements/ arrangements, forbearance for the time being was prescribed, and the need for prescribing a model contract agreement was not felt presently at the time.

D. DoT in its Gazette notification dated 09.10.2025 on the "Telecommunications (Authorisation for Telecommunication Network) Rules, 2025" provided the following, in Part D under Chapter 6, regarding agreements between Satellite Earth Station Gateway (SESG) authorised entities and partnering entities:

"(3) The authorised entity may provide its SESG infrastructure to entities authorised under sub-section (1) of section 3 of the Act (hereinafter "partnering entities" for the purpose of this rule), to enable the use of satellite systems for the purposes of the authorisation of such partnering entity, in accordance with the mutual agreement with such entities on a fair and non-discriminatory basis.
(4) The authorised entity holding the SESG provider authorisation may utilize the spectrum of the partnering entity for the limited purpose of

configuration, while the right to use of spectrum shall remain with the partnering entity.

(5) The authorised entity holding the SESG provider authorisation establishing, operating, maintaining, or expanding the baseband systems under sub-rule (3) of rule 47 shall extend control, visibility, resource allocation and management of the telecommunication services, being provisioned using satellite system to users, to the partnering entity on mutually agreed terms and conditions.

(6) The authorised entity holding SESG provider authorisation may share its passive infrastructure including building, electrical equipment, including battery and power plant, dark fiber, duct space, Right of Way, owned, established and operated by it under such authorisation, with the entities having authorisation under sub-section (1) of section 3 of the Act, in accordance with their mutual agreement, on a fair, and non-discriminatory basis."

Here, the agreements have been prescribed to be on mutual terms, with emphasis on fair and non-discriminatory basis.

3.21. Regarding perusal of Licensing provisions for VNOs or past Recommendations for Network Authorisations (including SESGs) as a reference for present exercise, it should be noted that the proposed SCN Authorisation is a novel concept, wherein it is envisaged as essentially a network authorisation with the added eligibility for assignment of spectrum. The VNO Authorisation is a service authorisation and SESGs are in the realm of network authorisations without spectrum. The provisions regarding agreements between Network & Service entities, in the Recommendation dated 17.02.2025 as well as the Draft Rules dated 09.10.2025, as quoted above, could be held to be relevant here from the point of view of regulation of such agreements.

3.22. Considering the above references to extant licensing regime and past TRAI recommendations, regarding regulation and treatment of agreements and charges transacted between Service Authorised entities and SCN authorised entities, including for utilisation of spectrum assigned to Service Authorised entity, and also keeping in mind the novelty of the proposed SCN Authorisation, the Authority solicits the views of stakeholders on the following sets of questions:

Issues for Consultation:

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.

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.

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.

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

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

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

C. Definitions of Gross Revenue (GR), Applicable Gross Revenue (ApGR) and Adjusted Gross Revenue (AGR)

3.23. Regarding recommending the appropriate items of revenue and deductions for the proposed SCN Authorisation, and consequent definitions for Gross Revenue (GR), Applicable Gross Revenue (ApGR), and Adjusted Gross Revenue (AGR), reference can be made to the extant licensing framework, past recommendations of the Authority as well as the Draft Rules under the Telecommunications Act, 2023. The following are accordingly dealt with below:

A. The existing definitions of GR, ApGR, and AGR applicable to existing satellite based authorisations - GMPCS and Commercial VSAT CUG - have been placed at **Annexure 3.1**.

B. The Authority in its Recommendations dated 19.08.2021 on "Recommendations on Enabling Unbundling of Different Layers Through Differential Licensing," examined the need for enabling unbundling of different layers of the digital communications ecosystem, such as infrastructure, network, services and application layers, through differential licensing. The Authority observed that enabling such unbundling could facilitate greater investments and innovation in the digital communications sector and would require a review of the existing licensing, regulatory and resource allocation frameworks. As part of these recommendations, the Authority had

recommended creation of a separate authorisation under Unified License for Access Network Provider (network layer) (ANP) to provide network services on wholesale basis. Under this authorization for Network layer only, the Access network provider was not permitted to directly provide services to the end users.

The Authority observed regarding the proposed Access network provider (ANP) Authorisation that, since the scope of a network provider is limited to the provision of network infrastructure and does not include the provision of services directly to end subscribers, the financial conditions applicable to such entities should be rationalized and kept relatively lower than those applicable to entities providing access services under the Unified License (UL). The Authority further noted that the combined scope of Access Network Provider and UL-VNO (Access Service) would be equivalent to the scope of a licensee holding Access Service authorisation under UL. Accordingly, the Authority recommended the following:

> *"the Authority recommends that since the combined scope of Access Network Provider and UL-VNO (Access service) is equal to the scope of a Licensee with Access Service authorization under UL, the Minimum Equity, Minimum Net worth, Entry Fee and FBG/PBG requirements for the proposed Access Network provider authorization may be arrived at by deducting the amounts prescribed for UL (VNO-Access Service) from the amount prescribed for UL-Access Service authorization."*

The said Recommendations with respect to the proposed Access Network Provider (ANP) authorisation may be particularly relevant in understanding and determining the financial conditions for SCN authorized entity, since the scope of both Access Network provider and SCN Authorised entity is limited to provision of network only and does not include provision of service directly to

the subscribers. Further, both have been envisaged as essentially network entities, with the added eligibility for assignment of spectrum for enabling provision of Network as a Service (NaaS) to a Service Authorised entity. The differences between them are apparent, as the proposed ANP authorisation pertains to provision of terrestrial networks, while the current SCN authorisation pertains to provision of satellite communication.

C. The Authority in its Recommendations dated 18.09.2024 on the "Framework for Service Authorisations to be Granted under the Telecommunications Act, 2023" recommended the financial conditions, including the definition of GR, ApGR and AGR, which are reproduced below:

> *"The term Gross Revenue (GR) with reference to the revenue sharing regime, in general, is the revenue earned from the operations under the licenses issued to the service provider including revenue from other sources. The License and service specific definition of GR is stipulated in the respective service license agreements.*
>
> *The Applicable Gross Revenue (ApGR) is arrived at after certain items are deducted from the Gross Revenue, being revenue from non-telecom activities and certain items mentioned license agreements. As such, the ApGR is equal to GR of the licensee as reduced by revenue from operations other than telecom activities/ operations, revenue from activities under a license/ permission issued by Ministry of Information and Broadcasting, receipts from the DBN (erstwhile USO Fund), and items of other income, which include, income from dividend, income from interest, capital gains on account of profit of sale of fixed assets and securities, gains from foreign exchange rate fluctuations, income from property rent, insurance claims, Bad debts recovered and excess provisions written back.*

For the purpose of arriving at the AGR, certain deductions are allowed from the ApGR. These deductions are specific for the different service authorisations under the license agreement.

AGR is the base on which license fee (LF) and spectrum usage charges (SUC) are computed by using the applicable rate."

In view of the above, the Authority recommended the following:

(a) The extant definitions of Gross Revenue (GR), Applicable Gross Revenue (ApGR) and Adjusted Gross Revenue (AGR) for the existing Service Authorisations should continue.

(b) In case of merged/ clubbed / new Service Authorisations, the definitions should be aligned accordingly.

(c) The applicable definitions for GR, AGR and ApGR have been given under the respective Service Authorisations.

(d) The clarification dated 17.07.2023 issued by DOT regarding the definitions of GR and AGR should be considered alongwith the applicable definitions for GR, AGR and ApGR as have been given under the respective Service Authorisations.

(e) Any further orders/instructions/clarifications on the definitions of Gross Revenue, Applicable Gross Revenue and Adjusted Gross Revenue may be issued by DOT after obtaining recommendations from TRAI.

In the above Recommendations, the Authority had recommended that the scope of the existing GMPCS Service Authorisation and Commercial VSAT CUG Service Authorisation be merged into a single authorisation, namely the Satellite-based Telecommunication Service Authorisation, under the Telecommunications Act, 2023. It was further recommended that the extant definitions of Gross Revenue (GR), Applicable Gross Revenue (ApGR), and Adjusted Gross Revenue (AGR), as provided in the Unified License (UL)

agreement, may be continued, with the recommendation that "in case of merged/clubbed/new Service Authorisations, the definitions should be aligned accordingly."

In view of the proposed merger of the GMPCS Service Authorisation and the Commercial VSAT CUG Service Authorisation into a single authorisation, revised definitions of GR, ApGR, and AGR were also prescribed in the Chapter-XI under Annexure 2.3 of said recommendations. The same are placed at Annexure-3.1.

It should also be kept in mind that a direct analogy cannot be drawn between SCN Authorisation and Satellite-based Telecommunication Service Authorisations, which was proposed to be a merger of GMPCS or Commercial VSAT Authorisation. SCN Authorisation is essentially a network authorisation with the added eligibility for assignment of spectrum, while the above recommendations pertained to a Service level authorisation which had direct interface with end users.

D. Further, the financial conditions specified by the DoT in Chapter 4 of the Gazette Notification dated 05.09.2025 on the "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" may also be referred to for the purpose of prescribing the definitions of GR/ApGR/AGR for SCN authorised entities. The definitions are reproduced below:

"

"Gross Revenue" of an authorised entity shall include revenues accrued to an authorised entity by way of all operations and activities and all income from any source including on account *of interest, dividend, rent, profit on sale of fixed assets and miscellaneous income, without any set-off for related items of expenses.*

"Applicable Gross Revenue" or "ApGR" for the purposes of calculating Adjusted Gross Revenue (AGR), shall be equal to Gross Revenue of an authorised entity as reduced by the items listed below:

(i) revenue from operations other than telecom activities or operations;

(ii) revenue from activities under an authorisation, permission or registration issued by Ministry of Information and Broadcasting;

(iii) receipts from the Digital Bharat Nidhi; and

(iv) revenue falling under the following items:

(a) income from dividend;

(b) income from interest;

(c) capital gains on account of profit on sale of fixed assets and securities;

(d) gains from foreign exchange rates fluctuations;

(e) income from property rent;

(f) insurance claims;

(g) bad debts recovered; and

(h) excess provisions written back: Provided that the Central Government shall from time to time specify the description and conditions applicable to these revenue sources and the manner of their computation.

"Adjusted Gross Revenue" or "AGR":

(i) In respect of a NSO, AGR shall be calculated by excluding the following from the ApGR:

(a) interconnection usage charges (IUC), related to calls and SMS, paid to other authorised entities or licensees; and

(b) roaming revenues paid to other authorised entities or licensees within India and telecommunication service providers outside India; and

(ii) In respect of a VNO, AGR shall be calculated by excluding from the ApGR, charges paid by the VNO to one or more NSOs under an agreement for

provision of telecommunication network, including bandwidth, leased circuits, call minutes and SMSs, as may be necessary for a VNO to provide telecommunication services to its users, subject to submission to the Central Government the copy of the agreement, specifying such charges, along with proof(s) of actual payment of such amounts.

"

It should be kept in mind that the above Draft Rules pertain to Main Telecom Services, which include Access, ISP, NLD services, but do not cover Network authorisations. However, the definitions of GR/ApGR/AGR could provide pertinent guidance point, if used with proper contextualisation.

3.24. Keeping in view the extant licensing framework, past recommendations by TRAI and Draft rules notified by DoT, the Authority solicits the views of stakeholders on the following sets of questions:

Issues for consultation:

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.

D. Spectrum Charges (SC)

3.25. In case it is decided that the entity holding the proposed Satellite Communication Network (SCN) authorisation be made eligible to obtain satellite spectrum (FSS or MSS or both) for either feeder link or user link or both, under the provisions of Section 4 of the Telecommunications Act, 2023, the Spectrum Charges payable by such SCN authorised entities needs to be discussed.

Para 2.114 to 2.126 under Chapter II leading up to Q12-15 deals with the issue of assigning FSS/MSS spectrum to SCN authorised entities. Further, based on discussions at Para 2.123-2.124, it is understood that, in case the SCNaaS, provided by SCN entity to Service entity, is used for provisioning of D2D service (with IMT user link), the IMT Spectrum assigned to the Service Authorised entity would be used for the same in the User link.

3.26. With reference to the discussion above, a SCN Authorised entity may obtain spectrum directly from the Central Government and/or enter into an agreement with a Service Authorised entity (partnering entity) providing telecommunication services for using spectrum assigned to such entity for providing SCNaaS to the service authorising entity. Except Option 4 and similar sub option in case of Option 5, as discussed in Section B above, the SCN authorised entities would obtain satellite spectrum directly from the Government for either feeder link or user link or both, for providing Satellite Communication Network-as-a-Service (SCNaaS) to service authorised entities under Section 3(1)(a) of the Telecommunications Act, 2023.

3.27. Regarding the appropriate spectrum charges for the proposed SCN Authorisation under such scenarios, reference can be made to the extant

licensing/ spectrum charging framework, past recommendations of the Authority as well as the Draft Rules under the Telecommunications Act, 2023.

The following are accordingly dealt with below:

A. Currently, satellite spectrum is being assigned through an administrative mechanism with formula-based charging for some services while charges are based on percentage of AGR for other services. These are summarised below:

(i) For Commercial VSAT CUG service authorisation, the spectrum charges are being levied quarterly as a percentage of Adjusted Gross Revenue (AGR), ranging from 3-4% of AGR, based on range of data rate, as per DoT's order no. R-11014/9/2001-LR dated 16th April 2003.

In this regard through the Recommendations on "Spectrum Usage Charges and Presumptive Adjusted Gross Revenue for Internet Service Providers and Commercial Very Small Aperture Terminal Service Providers" dated 07.03.2017, it was recommended that the Spectrum Usage Charges for Commercial VSAT CUG license *should not be more than 1% of AGR irrespective of the data rate*. The same has not been accepted by DoT.

(ii) Further, the Spectrum Charges for MSS/FSS, under other satellite-based service authorisations, are being levied as per DoT's order issued vide letter no. P-11014/34/2009-PP dated 11th December 2023 (erstwhile DoT's order dated 22nd March 2012). As per the above DoT's order, spectrum charges for satellite services are levied in two parts i.e. Part-I: Royalty Charges and Part II: License Fee for wireless stations.

The Annual Royalty charges for satellite-based services, as specified in Part-I of DOT's order dated 11th December 2023, are being calculated as given below:

Royalty, R (in Rs.) = 35000 x Bs;

where (Bs) is the Bandwidth Factor for Satellite Communications. For the table on bandwidth factors corresponding to different slabs of assigned bandwidth, reference may be made to Section C of the recommendations dated 09.05.2025.

The License Fee for wireless stations operating under Satellite Services (FSS, BSS, MSS), including standby sets is specified in Part-II of the afore-mentioned DoT's order and may also be referenced from Section C of Chapter III in the recommendations dated 09.05.2025.

The Schedule-VII of the said order is applicable for Assignment of spectrum to satellite-based services including Fixed Satellite Services (FSS), Broadcasting Satellite Services (BSS), Mobile satellite Services (MSS) and Earth Exploration Satellite Services (EESS). Thus, the standard annual royalty factor is fixed as Rs. 35,000/- per frequency. The same rates are applicable for all applications under FSS, BSS, MSS and EESS, in combination with the relevant Bandwidth Factor (Bs).

Further, currently, Commercial VSAT CUG service or the GMPCS service are not subject to any minimum spectrum charges.

While perusing the extant spectrum charging framework for GMPCS/ VSAT or the Recommendations dated 07.03.2017 in the context of present consultations, it should be kept in mind that SCN authorised

entities are proposed as essentially network authorised entities which do not directly serve subscribers. Thus, they would be differing in scope of service from GMPCS/ VSAT authorised entities which interface directly with end users.

B. The Recommendations dated 19.08.2021 on "Recommendations on Enabling Unbundling of Different Layers Through Differential Licensing" can also be referred while examining the appropriate spectrum charging framework for SCN authorised entities. In its Recommendations dated 19.08.2021, the Authority observed that maintaining a level-playing field among similar entities in the market is essential for orderly growth of the sector. It was noted that prescribing differential or reduced levies for network-layer operators could create possibilities of regulatory arbitrage between the proposed unbundled licensing regime and the existing integrated licensing framework under the Unified License. Accordingly, to maintain a level-playing field and mitigate any potential arbitrage opportunities, the Authority recommended that license fee and spectrum usage charges should remain the same for both the existing integrated licensing regime and the proposed unbundled licensing regime. Therefore, the Authority had recommended the following:

"The Authority concurs with the views of the stakeholders that there is a need of rationalization of regulatory levies; however, for ordered growth of the sector, level playing needs to be maintained between similar players in the market. Therefore, any change in levies for Network only layer should also be made for UL licensees. Prescription of differential (reduced) levies for Network Operator could create a possibility of arbitrage. Thus, to maintain level-playing field and to mitigate any possibility of arbitrage opportunity, it is important that the Government taxes and levies are kept same for the existing

(integrated) licensing regime and proposed unbundled license regime. Therefore, the Authority recommends that the License Fee and Spectrum Usage charges applicable for the Access Network Provider Authorization should be the same as that applicable to the Access Service Authorization under Unified License."

As noted above, the said Recommendations with respect to the proposed Access Network Provider (ANP) authorisation may be relevant in understanding and determining the financial conditions for SCN authorized entity, due to similarities in the scope of both the proposed authorisations.

Perusing the above recommendations dated 19.08.2021, it is observed that Spectrum charges for Network entity (proposed Access Network provider) and Service entity (Access Service Provider) had been proposed to be kept at the same level, to maintain level-playing field and mitigate any possibility of arbitrage opportunity. Following the same logic, it could be argued that the Spectrum Charges for SCN Authorised entities, which primarily belong to the Network layer, could be kept the same as Satellite based commercial communications services, providing service directly to end users, which have been dealt with holistically in the Recommendations dated 09.05.2025. The Recommendations dated 09.05.2025 are discussed below in detail.

C. In its Recommendations dated 18.09.2024 on the "Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023", which recommended merging of GMPCS & Commercial VSAT CUG Service authorization into a single Satellite based telecommunications service authorisation. The following was recommended regarding use of spectrum by this merged authorised entity:

The Authorisation does not confer any right to assignment and use of spectrum, for which separate specific frequency assignment shall be required from the Central Government under Section 4 of the Telecommunications Act, 2023. In case the Authorised Entity obtains spectrum from the Central Government, the terms of conditions of the assignment of spectrum shall also be applicable to the Authorised Entity along with the Service Authorisation.

D. The Authority in its Recommendations dated 09.05.2025 on the "Terms and Conditions for the Assignment of Spectrum for certain Satellite-Based Commercial Communication Services", had provided recommendations on spectrum charges on GSO based FSS, NGSO based FSS and GSO/ NGSO based MSS, which shall be applicable to Satellite-based telecommunication Service providers under Section 3(1)(a) of Telecommunication Act, 2023.

Following a detailed discussion with reasoned arguments, and considering all extant charging regimes and past Recommendations, the Authority had recommended moving away from current segregated modes of charging viz. AGR based for Commercial VSAT CUG Service and formula based for other MSS/ FSS such as GMPCS, towards AGR based charging mechanism for all Satellite based commercial communication services, which is tabulated below for easy reference:

Satellite Communication Service	**Annual spectrum charge (as per Recommendations dated 09.05.2025)**
GSO-based Fixed Satellite Services	Max (4% of AGR, Annual minimum spectrum charge)
GSO/NGSO-based Mobile Satellite Services	
NGSO-based Fixed Satellite Services	Max {(4% of AGR + 500 X Nu), Annual minimum spectrum charge} where Nu refers to Number of subscribers in urban areas
Annual minimum spectrum charge = Rs. 3,500 per MHz	

From the above table, it is observed that the level of spectrum charges recommended is uniform at 4% of AGR for all satellite communication services, except in the case of NGSO-based Fixed Satellite Services, where an additional per-subscriber charge of INR 500 per annum is recommended to be levied for urban areas. The detailed rationale for spectrum charges for various services can be referred at Section C of Chapter III in the Recommendations dated 09.05.2025.

Further, the Authority had also recommended that the Annual Minimum Spectrum Charges for GSO/NGSO-based Fixed Satellite Services and GSO/NGSO-based Mobile Satellite Services should be Rs. 3,500 per MHz. The detailed rationale for the can be referenced at Section C of Chapter III in the Recommendations dated 09.05.2025.

The above Recommendations had been considered by the DoT and a back reference dated 12.11.2025, seeking reconsideration of specific recommendations/ sub-sections of recommendations, was received by the Authority. With regard to Spectrum Charges, DoT accepted the recommendations regarding GSO/ NGSO based MSS, except for modification regarding GSPS (sui generis) license of BSNL. DoT also stated regarding the Recommendation no. 4.16 placed at Para 3.152 (summarising the entire recommendations for Spectrum charging of GSO/ NGSO based FSS/ MSS) that the same has not been accepted, in light of the observations of DoT regarding NGSO based FSS & GSPS license of BSNL respectively. Thus, for NGSO based FSS, wherein the Authority had recommended rate of 4% of AGR with an additional spectrum charge of INR 500 per urban subscriber, DoT suggested a Spectrum Charge of 5% (instead of 4%), with a discount of 1% if a certain percentage (say 5%) of overall customers enrolled in the year are from borders/ hills/ island areas of the country. The Authority, after examination of the reference, had reiterated its recommendations regarding spectrum charges for all categories of satellite based services.

While perusing the above Recommendations in the context of the present consultations, it should be kept in mind that SCN authorised entities are proposed as essentially network authorised entities which do not directly serve subscribers. Thus, they would be differing in scope of service from satellite based commercial communications services which interface directly with end users. Hence, the per-subscriber charge appears to be inapplicable for the SCN authorised entities. With these considerations, the Spectrum Charges recommended for Satellite based commercial communications service can be examined for applicability to proposed SCN Authorised entity.

Overall, it can be seen that, the Spectrum charges of 4% of AGR recommended by the Authority vide its Recommendations dated 09.05.2025 which have been arrived at after considering the extant satellite based services and various possibilities in detail and can serve as a reasonable basis for determining the spectrum charges for proposed SCN Authorised entities.

3.28. Further, the issue of enabling D2D services in MSS bands such as L & S bands also requires further discussion from the spectrum charging framework standpoint. These bands are presently administratively assigned for satellite-based service authorisations, while direct mobile services to consumers traditionally require the use of IMT spectrum acquired through auctions. The current and proposed charging mechanisms for Satellite based telecommunications services are examined at Para 3.27(A) & Para 3.27(D) above respectively, for further guidance in the matter.

In case these MSS bands are allowed for provisioning of D2D services by relevant service authorised entities, depending upon permitted modes of operations, the MSS spectrum may be held in such cases by either the SCN Authorised entity or the Service Authorised entity. Further, there appears to be no distinction between spectrum charging for MSS bands in the two use cases viz. traditional MSS via specialised satellite phones and D2D on regular cell phones using MSS bands. They could be charged as per the Recommendations dated 09.05.2025 which have been arrived at holistically for all satellite-based services. The same would require further discussion and is placed below as a question for stakeholders' comments regarding the issue of spectrum charging.

3.29. Another issue which needs discussion from spectrum charging standpoint is the use of IMT spectrum for the provision of non-terrestrial services, i.e.,

Direct-to-Device (D2D) satellite-based telecommunication services by the service authorized entities, as envisaged under Option 4 above. This necessitates consideration of whether any additional spectrum charges should be payable by the Service Authorised entity to the Government.

One argument could be that if the IMT spectrum is used for provision of non-terrestrial (satellite) services, it would earn an additional revenue which would not have been viable with only terrestrial expansion of network. Hence, an additional spectrum charge can be held to be payable on the IMT spectrum blocks used for provision of D2D services. The spectrum charging for the same could follow the proposed spectrum charges for satellite services as per Recommendations dated 09.05.2025.

Conversely, it could be argued that there need not be any additional Spectrum charges for Service authorized entities if the IMT spectrum is used for providing D2D satellite-based services, based on following grounds:

(i) The Service Authorised entity holds exclusive rights over the service area for the IMT spectrum acquired through a due process, and the end use covers mobile telecommunications. The SCN Authorised entity provides only infrastructure in the form of BTS in the sky.

(ii) IMT spectrum earmarked by the partnering entity for the provision of satellite-based telecommunication services within a given geographical area/Licensed Service Area (LSA) cannot be simultaneously utilised for terrestrial services in the same area. In this context, the use of IMT spectrum for non-terrestrial networks may be viewed as complementary to terrestrial networks.

(iii) Further, Satellite-based communication services are expected to primarily provide connectivity in remote, rural, and otherwise uncovered or underserved areas where terrestrial networks are either not available

or are economically unviable to deploy. Accordingly, the IMT spectrum utilised for satellite-based communications essentially provided supplementary coverage and furthers the goal of universal digital connectivity by extending communication services to areas beyond the reach of conventional terrestrial networks.

(iv) Also, the revenue potential from satellite-based services using IMT spectrum is likely to be relatively limited in the near term, as such services would largely be operational in sparsely populated or remote areas and could be difficult to be optimally monetized.

In this regard, it could be argued that satellite-based services are complementary extension of terrestrial networks, aimed at enhancing overall network reach and service availability. Hence, a case could be made that permitting the use of IMT spectrum for provisioning of satellite-based communication services, particularly for expanding connectivity in remote and rural areas, should not attract any additional spectrum charges payable to the Government.

The issue of spectrum charging in case of usage of IMT spectrum for Satellite based services has been placed as a question for soliciting stakeholders' comments.

3.30. The international practices regarding terms and conditions for allowing use of IMT spectrum for D2D services have been discussed at Para 2.104 of Chapter II.

Keeping in view the extant licensing and spectrum charging framework, past recommendations by TRAI, Draft rules notified by DoT and the international best practices, the Authority solicits the views of stakeholders on the following sets of questions:

Issues for consultation:

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?

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.

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.

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.

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.

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.

E. Payment terms

3.31. Regarding recommending the appropriate payment terms, the extant licensing regime, past TRAI recommendations as well as Draft Rules under Telecommunications Act, 2023 can be referred. Accordingly, the following are dealt with below:

A. The payment terms for Spectrum Charges under the extant framework for Access Service entities as well as Commercial VSAT CUG/ GMPCS authorised entities is guided by various WPC/ WPF charging orders and essentially is in line with the Draft Rules contained in Gazette notification dated 05.09.2025.

B. The Authority, through its Recommendations dated 09.05.2025 on the "Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services" recommended the following payment terms for spectrum charges:

"

ii. The annual spectrum charges for GSO/ NGSO-based Fixed Satellite Services, GSO/ NGSO-based Mobile Satellite Services, as specified in paras 3.106, 3.121 and 3.143 above, should be paid on advance quarterly basis and payable within 15 days of the commencement of the respective quarter.

iii. The minimum charges should be paid in advance at the time of the assignment of spectrum and at the beginning of every year. The quarterly/annual adjustment of payment due shall be made with the minimum spectrum charge for the particular year only.

iv. The per subscriber charges should be paid by NGSO-based FSS service providers on a quarterly basis equal to 125 X Nu, where Nu refers to total number of subscribers in urban areas at the end of the previous quarter".

The above Recommendations had been considered by the DoT and a back reference dated 12.11.2025, seeking reconsideration of specific recommendations/ sub-sections of recommendations, was received by the Authority. With regard to Payment terms, DoT accepted the recommendations with the condition that TRAI may refer to Financial Conditions, in particular

Rule 27, of Draft telecommunications Rules 2025 circulated on 09.09.2025, and ensure that the payment terms for Spectrum charges are in sync with the authorisation rules being framed. The Authority, after examination of the reference, had recommended the following in its Response dated 08.12.2025 to the Back Reference:

> *2.37.5 Regarding the AGR-based charges (as mentioned at (a) above), the Authority takes note of the schedule of payment prescribed by DoT in the Draft Rules and agrees with DoT that instead of advance payment, the schedule of payment as given in the Draft Telecommunications (Authorisation for Provision of Main Telecommunication Services) Rules, 2025 framed by DOT, can be followed to be in sync with the authorisation Rules.*
>
> *2.37.6 The Authority further notes that the Draft Rules on Schedule of payment notified under Section 3 of the Telecommunications Act, 2023 prescribe only for the schedule of payment related to the minimum spectrum charges or the spectrum charges that are linked to AGR. These Rules do not cover the minimum spectrum charges based on per MHz or the fixed charge recommended by the Authority.*
>
> *2.37.7 The Authority, therefore, is of the view that the payment condition related to minimum spectrum charges based on per MHz and fixed per subscriber charge be suitably inserted while finalizing the Draft Rules on Schedule of payment notified under Section 3 of the Telecommunications Act, 2023 and / or the yet to be framed Rules for Section 4 of the Telecommunication Act, 2023, as applicable.*

In essence, the advance payment provision for quarterly Spectrum charges was revised and the schedule of payment as given in the Draft Telecommunications (Authorisation for Provision of Main Telecommunication

Services) Rules, 2025 framed by DOT, was recommended to be followed with certain conditions.

C. DoT in its Gazette notification dated 05.09.2025 on the "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" provided the following payment terms:

i. *The authorisation fee or spectrum charges linked to AGR determined under these rules shall be payable in four quarterly instalments during each financial year commencing first of April, and free for any duration of authorisation that is less than a quarter shall be calculated on a pro-rata basis based on actual number of days in the relevant quarter.*

ii. *An authorised entity shall make payment of the quarterly instalments of the authorisation fee and spectrum charges linked to AGR in the following manner:*

(a) The quarterly instalment is respect of each of the first three quarters of a financial year shall be paid within fifteen days of completion of the relevant quarter and

(b) The quarterly instalment for the last quarter shall be paid in advance by the twenty-fifth of March, calculated on the basis of expected revenue for that quarter, subject to a minimum amount equal to the authorisation fee and spectrum charges linked to AGR paid for the previous quarter:

Provided that an authorised entity shall adjust and pay the difference between the advance payment made for the last quarter and the actual amount duly payable for such quarter by the fifteenth of April of next financial year.

3.32. Keeping in view the extant licensing framework, past recommendations by TRAI and Draft rules notified by DoT, the Authority solicits the views of stakeholders on the following sets of questions:

Issues for Consultation:

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.

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.

F. Other Financial Conditions

3.33. In the evolving landscape of satellite communications, it is crucial to establish robust financial conditions beyond the definitions of GR/ApGR/AGR & Spectrum Charges to ensure the sustainable growth and development of the sector. Financial conditions such as Minimum equity/networth requirements, Entry fees, Bank guarantees, Application processing fees, and Authorisation fees play both a material and a signalling role in shaping the competitive environment. These financial conditions help ensure that only serious players enter the market, while also encouraging entrepreneurship in this emerging field, which

is still at a nascent stage of development. These conditions serve not only as safeguards against non-serious entities but also as enabling mechanisms to foster innovation and investment, thereby driving the overall progress of the industry. Hence, it is essential to examine these other financial conditions for SCN Authorised entities with a balanced perspective.

3.34. For these other financial conditions covering Minimum equity and networth requirements, Entry fees, Bank guarantees, Application processing fees and Authorisation fees, reference can be made to the existing licensing regime, past recommendations, and the Draft Rules under the Telecommunications Act, 2023. However, it is to be noted that SCN Authorisation is a novel concept, which is essentially a network authorisation with the added eligibility for assignment of spectrum, while the proposed Satellite based telecom Service Authorisations as per Recommendations dated 18.09.2024 are service based authorisations and SESGs as per Recommendations dated 29.11.2022/ 17.02.2025 are in the realm of network authorisations with spectrum. The extant licensing framework, including for Commercial VSAT and GMPCS Authorisations, does not differentiate between Network and Service provision, and generally permits for both. Thus, these references to extant licensing framework or past TRAI Recommendations only provide broad contours of the probable framework for SCN Authorisation. The aspects relating to these other financial conditions, along with insights from the existing licensing regime, past recommendations, and the Draft Rules under the Telecommunications Act, 2023, are discussed in subsequent sections.

F 1. Minimum equity and minimum Net worth

3.35. Regarding the Minimum equity and minimum net worth requirements for proposed SCN Authorised entity, reference can be made to the existing

licensing regime, past recommendations and the Draft Rules under the Telecommunications Act. Accordingly, the following are dealt with below:

A. In the Unified License (UL) Agreement, it is stated that the minimum equity and minimum networth requirements are NIL for the VSAT (National Area) service authorisation, whereas a minimum equity and minimum networth of Rupees Two Crore Fifty Lakh each are required for the GMPCS (National Area) service authorisation of the licensee.

B. The financial conditions applicable to the Access Network Provider proposed by the Authority in its recommendations dated 19.08.2021 is reproduced below on determination of minimum equity and minimum networth requirements.

> *"The Authority recommends that since the combined scope of Access Network Provider and UL-VNO (Access service) is equal to the scope of a Licensee with Access Service authorization under UL, the Minimum Equity, Minimum Net worth, Entry Fee, and FBG/PBG requirements for the proposed Access Network provider authorization may be arrived at by deducting the amounts prescribed for UL (VNO–Access Service) from the amount prescribed for UL-Access Service authorization."*

C. In its Recommendations dated 29.11.2022 on "Recommendations on Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG)" the Authority recommended that there should be no requirement of minimum equity and minimum networth in respect of SESG License.

D. In its Recommendations dated 18.09.2024 on the "Framework for Service Authorisations to be Granted Under the Telecommunications Act,

2023", the Authority recommended Rupees One Crore each minimum equity and minimum networth for Satellite-based telecommunication service authorisation.

E. In its Recommendations dated 17.02.2025 on the "Recommendations on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023", the Authority recommended that there shall be no requirement for minimum equity and minimum networth for SESG Provider Authorisation.

F. In the Gazette notification dated 05.09.2025 on the "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" issued by the DoT, prescribed the minimum equity and minimum networth requirements under Schedule C and mentioned the following regarding minimum equity and minimum networth in Chapter 2:

> *"(1) An applicant seeking authorisation under these rules shall be a company incorporated under the Companies Act having minimum paid up equity capital and minimum networth, as specified in Schedule C to these rules:*
>
> *Provided that where an applicant possesses one or more authorisations or applies for one or more new authorisations:*
>
> *(a) the requirement of minimum paid up equity capital shall be equal to the sum total of the minimum paid up equity capital requirement for each such authorisation as specified under Schedule C.*

(b) the requirement of minimum networth shall be equal to the sum total of the minimum networth requirement for each such authorisation as specified under Schedule C.

Provided further that where an applicant possesses one or more authorisations or applies for one or more new authorisations under sub-section (1) of section 3 of the Act, for any type of telecommunication service or telecommunication network, the requirement of minimum networth and minimum paid up equity capital shall be equal to the sum total of the minimum networth and minimum paid up equity capital requirement for each such authorisation, respectively."

The Minimum equity and minimum networth specified under Schedule C for various Service authorisations is given below:

SCHEDULE C: MINIMUM EQUITY, MINIMUM NETWORTH FOR AUTHORISATIONS FOR TELECOMMUNICATION SERVICES

S. No.	Category of service authorisations	Service Authorisation	Minimum Equity (in Rs.)	Minimum Networth (in Rs.)
1.	Main Services Authorisations (NSO)	Unified Service Authorisation	25 crores	25 crores
2.		Access Service Authorisation	2.5 crores	2.5 crores
3.		Internet Service Authorisation (National Area)	10 lakh	Nil
4.		Internet Service Authorisation	1 lakh	Nil

S. No.	Category of service authorisations	Service Authorisation	Minimum Equity (in Rs.)	Minimum Networth (in Rs.)
		(Telecom circle/ Metro Area)		
5.		Long Distance Service Authorisation	2.5 crores	2.5 crores
6.	Main Service Authorisations (VNO)	Unified Service Authorisation	10 crores	10 crores
7.		Access Service Authorisation	1 crore	1 crore
8.		Wireline Access Service Authorisation	1 lakh	Nil
9.		Internet Service Authorisation (National Area)	10 lakh	Nil
10.		Internet Service Authorisation (Telecom circle/ Metro Area)	1 lakh	Nil
11.		Long Distance Service Authorisation	1 crore	1 crore

3.36. Keeping in view the extant licensing framework, past recommendations by TRAI and Draft rules notified by DoT, the Authority solicits the views of stakeholders on the following sets of questions:

Issue for consultation:

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.

F 2. Entry Fee

3.37. Regarding recommending the appropriate entry fee, the extant licensing regime, past recommendations as well as Draft Rules under Telecommunications Act, 2023 can be referred. Accordingly, the provisions for Entry Fee in the relevant recommendations, extant licensing provisions as well as Draft Rules are discussed below:

A. In the Unified License (UL) Agreement, it is stated that a one-time, non-refundable entry fee of Rupees Thirty Lakh for VSAT (National Area) service authorisation and Rupees One Crore for GMPCS (National Area) service authorisation is to be paid by the licensee.

B. As discussed above in section D of this chapter, the Authority in its Recommendations dated 19.08.2021 had examined the financial conditions applicable to the Access Network Provider. The Authority observed that since the scope of a network provider is limited to the provision of network infrastructure and does not include the provision of services directly to end

subscribers, the financial conditions applicable to such entities should be rationalized and kept relatively lower than those applicable to entities providing access services under the Unified License (UL). The Authority further noted that the combined scope of Access Network Provider and UL-VNO (Access Service) would be equivalent to the scope of a licensee holding Access Service authorisation under UL. Accordingly, the Authority recommended the following:

> *"the Authority recommends that since the combined scope of Access Network Provider and UL-VNO (Access service) is equal to the scope of a Licensee with Access Service authorization under UL, the Minimum Equity, Minimum Net worth, Entry Fee and FBG/PBG requirements for the proposed Access Network provider authorization may be arrived at by deducting the amounts prescribed for UL (VNO-Access Service) from the amount prescribed for UL-Access Service authorization."*

C. In its Recommendations dated 29.11.2022 on the "Recommendations on Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG)", the Authority recommended a non-refundable one-time Entry Fee of Rs. Ten lakhs to be levied for the grant of SESG License.

D. In its Recommendations dated 18.09.2024 on the "Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023", the Authority suggested the entry fee of Rupees Fifty lakh for Satellite-based telecommunication service authorisation.

E. In its Recommendations dated 17.02.2025 on the "Recommendations on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023", the Authority recommended an entry fee of Rupees Ten Lakh for SESG Provider Authorisation.

F. DoT in Chapter II of its Gazette notification dated 05.09.2025 on the "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" has prescribed the entry fee requirements for various Service authorisations under Schedule A, as given below:

SCHEDULE A: ENTRY FEE FOR AUTHORISATIONS FOR TELECOMMUNICATION SERVICES

S .No.	Category of Service Authorisations	Service Authorisation	Entry Fee (in Rs.)
1.	Main Telecommunications Service Authorisations (NSO)	Unified Service Authorisation	12 crores
2.		Access Service Authorisation	50 lakh (25 lakh for NE & J&K)
3.		Internet Service Authorisation (National Area)	10 lakh
4.		Internet Service Authorisation (Telecom circle/ Metro Area)	50,000 (25,000 for NE & J&K)
5.		Long Distance Service	1 crore

S .No.	Category of Service Authorisations	Service Authorisation	Entry Fee (in Rs.)
		Authorisation	
6.	Main Telecommunication Service Authorisations (VNO)	Unified Service Authorisation	3 crores
7.		Access Service Authorisation	12.5 lakh (6.25 lakh for NE & J&K)
8.		Wireline Access Service Authorisation	50,000 (25,000 for NE & J&K)
9.		Internet Service Authorisation (National Area)	10 lakh
10.		Internet Service Authorisation (Telecom circle/ Metro Area)	50,000 (25,000 for NE & J&K)
11.		Long Distance Service Authorisation	25 lakh

3.38. Keeping in view the extant licensing framework, past recommendations by TRAI and Draft rules notified by DoT, the Authority solicits the views of stakeholders on the following sets of questions:

Issue for consultation:

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

F 3. Authorisation fee

3.39. Regarding the appropriate rate of authorisation fee, reference can be made to the extant licensing regime, past recommendations and the Draft Rules under the Telecommunications Act. Accordingly, the following are dealt with below:

A. The License Fee terms contained in extant Unified License, applicable to all authorisations under the Unified License framework are as follows:

18.2 License Fee:
18.2.1 In addition to the Entry Fee, an annual License fee as a percentage of Adjusted Gross Revenue (AGR) shall be paid by the Licensee service-area wise, for each authorized service from the effective date of the respective authorization. The License fee shall be 8% of the AGR, inclusive of USO Levy which is presently 5% of AGR.
Provided that from Second Year of the effective date of respective authorization, the License fee shall be subject to a minimum of 10% of the Entry Fee of the respective authorized service and service area as in Annexure-II.

B. The Authority in its Recommendations dated 19.08.2021 on "Recommendations on Enabling Unbundling of Different Layers Through Differential Licensing" suggested that the License/ Authorisation fee of Access Network provider should be the same as Access service provider, essentially prescribing the same level of fees between Network & Service entities to prevent arbitrage. The following excerpt may be seen:

The Authority concurs with the views of the stakeholders that there is a need of rationalization of regulatory levies; however, for ordered growth of the sector, level playing needs to be maintained between similar players in the market. Therefore, any change in levies for Network only layer should also be made for UL licensees. Prescription of differential (reduced) levies for Network Operator could create a possibility of arbitrage. Thus, to maintain level-playing field and to mitigate any possibility of arbitrage opportunity, it is important that the Government taxes and levies are kept same for the existing (integrated) licensing regime and proposed unbundled license regime.

Therefore, the Authority recommends that the License Fee and Spectrum Usage charges applicable for the Access Network Provider Authorization should be the same as that applicable to the Access Service Authorization under Unified License.

C. The Authority in its Recommendations dated 29.11.2022 on "Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG) noted the following:

"the SESG licensees will render satellite-based resources to service licensees. Using the satellite-based resources provided by the SESG licensees, service

licensees will provide communication services to the customers. The SESG licensees themselves will not provide communication services directly to the end users. The service licensees, to whom SESG licensees will provide satellite-based resources, are already governed by Adjusted Gross Revenue (AGR) based License Fee regime. Therefore, it would be desirable to keep the License Fee payable by SESG licensees as minimum possible.

As the SESG licensees will not provide any service directly to end customers, only a token License Fee of Re. 1 per annum shall be levied on the SESG License."

D. In its Recommendations dated 18.09.2024 on the "Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023", the Authority recommended that the rate of Authorisation Fee for Satellite based telecom Service Authorisations should be the same as the existing rate of License Fee for the Main Service Authorisations, which is 8%, including a 5% levy towards Digital Bharat Nidhi. Further, the Authority recommended that at the time of renewal of Service Authorisation, the Minimum Authorisation Fee should be equal to 10% of Entry Fee of the respective authorised service and service area, initially paid.

E. In its Recommendations dated 17.02.2025 on the "Recommendations on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023", the following was recommended regarding Authorisation fees for proposed SESG Authorisation:

Considering the scope associated with SESG Provider Authorisation, the Authority notes that it does not involve the provision of services directly to end customers. Instead, the provision of networks under this authorisation are

intended only for telecom service providers. Therefore, the Authority is of the view that it is appropriate not to levy any authorisation fee for SESG Provider Authorisation.

F. In the Gazette notification dated 05.09.2025 on the "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" issued by the DoT, the following is mentioned regarding rate of authorisation fee in Chapter 4 relating to Financial Conditions:

Para 26 Fee and Charges:
(2) An authorised entity shall pay an annual authorisation fee for each authorisation, payable from the effective date of such authorisation, which shall be eight per cent of the AGR:

Provided that from the second year of the effective date of the authorisation, and for each subsequent year, the authorisation fee shall be the higher of: (a) the amount specified under sub-rule (2), or (b) thirty percent of the applicable entry fee as specified in Schedule A.

Provided further that in case of renewal of an authorisation, the authorisation fee shall be subject to a minimum of thirty percent of the entry fee of the respective authorisation from the effective date of renewal.

Provided also that in case of migration of an existing license to a relevant authorisation, the authorisation fee shall be subject to a minimum of thirty percent of the entry fee of the respective authorisation from the effective date of migration.

G. DoT in its Gazette notification dated 09.10.2025 on the "Telecommunications (Authorisation for Telecommunication Network) Rules, 2025" provided the following conditions for Authorisation Fee regarding Satellite Earth Station Gateway (SESG) provider authorisation.

"There shall be no authorisation fee payable by the authorised entity in respect of the SESG provider authorization under this Part D."

3.40. Keeping in view the extant licensing framework, past recommendations by TRAI and Draft rules notified by DoT, the Authority solicits the views of stakeholders on the following sets of questions:

Issues for consultation:

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.

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.

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

F 4. Bank Guarantee

3.41. Regarding the appropriate provisions for Bank Guarantees the extant licensing regime, past recommendations as well as Draft Rules under Telecommunications Act, 2023 could provide useful reference. Accordingly, the same are discussed below:

A. In the Unified License (UL) Agreement, it is stated that the Licensee shall submit Financial Bank Guarantee (BG) for an amount of Rupees Six Lakh for VSAT (National Area) service authorisation and Rupees Twenty Lakh for GMPCS (National Area) service authorisation before signing the License Agreement or subsequent authorization of service(s), as the case may be, valid for one year, from any Scheduled Bank or Public Financial Institution duly authorized to issue such Bank Guarantee, in the prescribed Proforma given in license agreement. Subsequently, the amount of bank guarantee shall be equivalent to 20% of the estimated sum payable (of License fee for two quarters and other dues not otherwise securitized). The amount of FBG shall be subject to periodic review on six monthly basis by the Licensor and shall be renewed from time to time.

Regarding Performance Bank Guarantee (PBG), the UL states that Licensee shall submit Financial Bank Guarantee (BG) for an amount of Rupees Ten Lakh for VSAT (National Area) service authorisation and Rupees Fifty Lakh for GMPCS (National Area) service authorisation. There is no provision for mandatory regular/ periodic review of PBG amount.

The following provisions cover the FBG/ PBG processes in Unified License

21. BANK GUARANTEES:

21.1 Performance Bank Guarantee: Performance Bank Guarantee (PBG) in prescribed format at Annexure-III of this license agreement shall be submitted

separately for each service and service area for the amount as per Annexure-II, subject to a maximum of Rs 44 Crore initially, before signing the License Agreement or subsequent authorization of service(s), as the case may be, valid for one year, from any scheduled bank or public financial institution duly authorized to issue such bank guarantee, to cover violation of license conditions and to ensure the performance under the license agreement including compliance of instructions issued by the Licensor from time to time. The PBGs shall be maintained and kept valid by the licensee during the entire currency of the license agreement. However, the Licensor may increase the value of PBGs whenever any demand is raised for non-compliance of terms and conditions of License/authorization to the extent it remains un-securitized by the existing PBGs, which shall be maintained till clearance of such demand by the licensee.

21.2 Financial Bank Guarantee: The Licensee shall submit Financial Bank Guarantee (FBG) separately for each service and service area for the amount as per Annexure-II, subject to a maximum of Rs 8.8 Crore initially before signing the License Agreement or subsequent authorization of service(s), as the case may be, valid for one year, from any Scheduled Bank or Public Financial Institution duly authorized to issue such Bank Guarantee, in the prescribed Proforma at Annexure IV of this license agreement. Subsequently, the amount of FBG shall be equivalent to 20% of the estimated sum payable (of License fee for two quarters and other dues not otherwise securitized). The amount of FBG shall be subject to periodic review on six monthly basis by the Licensor and shall be renewed from time to time.

21.3 Initially, the Bank Guarantees (FBG as well as PBG) shall be valid for a period of one year and shall be renewed from time to time. The Licensee, on its own, shall extend the validity period of the Bank Guarantees at least one month prior to date of its expiry without any demand or notice from the Licensor on year to year basis. Any failure to do so, shall amount to violation

of the terms of the License and entitle the Licensor to encash the Bank Guarantees and to convert into a cash security without any reference to the Licensee at his risk and cost. No interest or compensation whatsoever shall be payable by the Licensor on such encashment.

21.4 Where the Bank Guarantees have been encashed partially, the licensee on such occasions, shall restore the encashed guarantees to the full amount. Any failure to do so shall amount to violation of the terms and conditions of the license.

21.5 Without prejudice to its rights of any other remedy, Licensor may encash Bank Guarantee (FBG as well as PBG) in case of any breach in terms & conditions of the License by the Licensee.

B. Regarding Access Network Providers, the Authority in its Recommendations dated 19.08.2021, recommended financial conditions applicable to the Access Network Provider and the same is reproduced below for determination of bank guarantee for SCN Authorised entity.

> *"The Authority recommends that since the combined scope of Access Network Provider and UL-VNO (Access service) is equal to the scope of a Licensee with Access Service authorization under UL, the Minimum Equity, Minimum Net worth, Entry Fee, and FBG/PBG requirements for the proposed Access Network provider authorization may be arrived at by deducting the amounts prescribed for UL (VNO–Access Service) from the amount prescribed for UL-Access Service authorization."*

C. In its Recommendations dated 29.11.2022 on "Recommendations on Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG)" the Authority recommended that no Bank Guarantees (Performance Bank Guarantee or Financial Bank Guarantee) shall be obtained from the SESG Licensee.

D. Further, the Authority in its Recommendations dated 18.09.2024 on the "Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023", recommended the following for Satellite-based telecommunication service authorisation:

(a) For the initial year, the amount of Bank Guarantee (BG) for Satellite-based Telecommunication Service Authorisation should be INR 0.50 crore for initial year.

(b) For the subsequent years, the amount of Bank Guarantee should be higher of the initial year BG or 20% of the estimated sum payable (of authorisation fee for two quarters and other dues not otherwise securitized).

(c) The Bank Guarantee should be submitted to securitize the authorisation fee and other dues not otherwise securitized, to cover the violation of conditions of authorisation and to ensure the performance under authorisation/regulations including compliance of instructions issued by the Central Government/TRAI from time to time.

(d) The Bank Guarantee should be subject to periodic review on six monthly basis by Central Government.

(e) The BG should be subject to the detailed provisions/ conditions that have been included in the Financial Terms and Conditions for Telecommunication (Main Service Authorisation) Rules.

E. The Authority in its Recommendations dated 17.02.2025 on the "Recommendations on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023", the Authority recommended that no bank guarantee should be submitted for SESG Provider Authorisation.

F. In the Gazette notification dated 05.09.2025 on the "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" issued by the DoT, prescribed the bank guarantee requirements under Schedule A and mentioned the following regarding Bank Guarantee in Chapter 4 relating to Financial Conditions:

"28. Guarantee requirements for authorisation

(1) An authorised entity shall, for the purpose specified in sub-rule (2), submit a guarantee in the form and manner, as may be specified on the portal, of any of the following types:

(a) a bank guarantee from any scheduled bank or public financial institution;

(b) an insurance surety bond, issued by an insurance company, in accordance with the applicable rules and guidelines issued by the Insurance Regulatory and Development Authority of India; or

(c) non-interest-bearing security deposit with the Central Government.

(2) The purpose of the guarantee as specified in sub-rule (1) is to provide security for due compliance of all the terms and conditions of the authorisation, including but not limited to payment of authorisation fee, spectrum charges linked to AGR, penalty imposed for contravention or breach of any of the terms and conditions of the authorisation or non-compliance of notifications, orders, directions, or guidelines, issued by the Central Government from time to time, and any other dues payable under the authorisation.

(3) The guarantee submitted under sub-rule (1) shall be subject to periodic annual review by the Central Government and an authorised entity shall maintain a valid guarantee for the duration of authorisation, or until all dues under the authorisation are cleared, whichever is later:

Provided that the initial guarantee submitted pursuant to the letter of intent shall be for the amount as specified in respect of each relevant authorisation in Schedule A, and for the subsequent years of authorisation, for an amount determined by the Central Government, based on the higher of: (a) the amount of initial guarantee, and (b) twenty per cent of combined estimated sum, calculated in accordance with the procedure specified for this purpose on the portal, of the following:

(i) authorisation fee for two quarters;

(ii) spectrum charges linked to AGR for two quarters; and

(iii) any other dues that are not otherwise secured.

(4) An authorised entity shall extend the validity period of such guarantee at least one month prior to the date of its expiry, without any demand or notice from the Central Government.

(5) Any failure to maintain a valid guarantee at any time during the duration of the authorisation, or until all dues under the authorisation are cleared, whichever is later, shall entitle the Central Government to encash the bank guarantee, claim the insurance surety bond, or appropriate the security deposit, as the case may be, without any notice to the authorised entity:

Provided that no interest or compensation shall be payable by the Central Government on encashment, claim or appropriation of such guarantee.

(6) When the guarantee has been encashed, claimed or appropriated, fully or partially, an authorised entity on such occasions shall restore such encashed, claimed or appropriated guarantee, as the case may be, to the full amount within fifteen days of such encashment, claim, or appropriation:

Provided that the Central Government may, upon receipt of a written request from the authorised entity before the expiry of the period specified in sub-rule (6), allow a one-time extension not exceeding ten days, for such restoration, subject to reasons being recorded in writing.

(7) Without prejudice to its rights or any other remedy, including those under the Telecommunications (Adjudication and Appeal) Rules, 2025, the Central Government may encash, claim or appropriate the guarantee in the following cases:

(a) non-payment of authorisation fee, spectrum charges linked to AGR, or any other dues payable under the authorisation or assignment;

(b) non-payment of dues arising out of penalties imposed by the Central Government; or

(c) breach of any other term or condition of authorisation or assignment.

(8) On revocation, surrender, or expiry of the authorisation, the relevant guarantee shall be released to an authorised entity only after ensuring clearance of all dues, which an authorised entity is liable to pay to the Central Government:

Provided that in case of failure to pay the amounts due to the Central Government, the outstanding amounts shall be realized through encashment, claim or appropriation of the guarantee without prejudice to any other actions for recovery of the amounts due to the Central Government, without any further communication to such authorised entity."

The Initial Bank Guarantee requirements for various Service authorisations specified under Schedule A is given below.

SCHEDULE A: INITIAL GUARANTEE FOR AUTHORISATIONS FOR TELECOMMUNICATION SERVICES

S. No.	Category of Service Authorisations	Service Authorisation	Initial Guarantee (in Rs.)
1.	Main Telecommunications Service Authorisations (NSO)	Unified Service Authorisation	44 crores
2.		AccessService Authorisation	2 crores
3.		Internet Service Authorisation (National Area)	4 lakh
4.		Internet Service Authorisation (Telecom circle/ Metro Area)	20,000
5.		Long Distance Service Authorisation	1 crore
6.	Main Telecommunication Service Authorisations (VNO)	Unified Service Authorisation	4.4 crores
7.		AccessService Authorisation	20 lakh
8.		Wireline Access Service Authorisation	10,000
9.		Internet Service Authorisation (National Area)	1 lakh

10.		Internet Service Authorisation (Telecom circle/ Metro Area)	10,000
11.		Long Distance Service Authorisation	50 lakh

3.42. Keeping in view the extant licensing framework, past recommendations by TRAI and Draft rules notified by DoT, the Authority solicits the views of stakeholders on the following sets of questions:

Issue for consultation:

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.

F 5. Application processing fee

3.43. Regarding the requirements of Application Processing Fee, reference can be made to the existing licensing regime, past recommendations and the Draft Rules under the Telecommunications Act. Accordingly, the following are dealt with below:

A. In the Unified License (UL) Agreement, it is stated that application processing fee of Rupees Fifty Thousand for VSAT (National Area) service

authorisation and Rupees Fifty Thousand for GMPCS (National Area) service authorisation is to be paid by the licensee.

B. In its Recommendations dated 29.11.2022 on "Recommendations on Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG)," the Authority recommended that, for applications seeking the grant of an SESG license, a processing fee of Rupees Five Thousand be levied. Further, a processing fee of Rupees Five Thousand was also recommended for each application seeking permission to establish an additional SESG.

C. In its Recommendations dated 18.09.2024 on the "Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023", the Authority recommended an application processing fee of Rupees Ten Thousand for Satellite-based telecommunication service authorisation.

D. In its Recommendations dated 17.02.2025 on the "Recommendations on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023", the Authority recommended an application processing fee of Rupees Ten Thousand for SESG Provider Authorisation.

E. DoT in Chapter II of its Gazette notification dated 05.09.2025 on the "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" has prescribed the Application Processing Fee requirements under Schedule A. The Application Processing Fee specified under Schedule A for various Service authorisations is given below:

SCHEDULE A: PROCESSING FEE FOR AUTHORISATIONS FOR TELECOMMUNICATION SERVICES

S. No.	Category of Service Authorisations	Service Authorisation	Processing Fee (in Rs.)
1.	Main Telecommunications Service Authorisations (NSO)	Unified Service Authorisation	1 lakh
2.		Access Service Authorisation	10,000
3.		Internet Service Authorisation (National Area)	10,000
4.		Internet Service Authorisation (Telecom circle/ Metro Area)	10,000
5.		Long Distance Service Authorisation	10,000
6.	Main Telecommunication Service Authorisations (VNO)	Unified Service Authorisation	1 lakh
7.		Access Service Authorisation	10,000
8.		Wireline Access Service Authorisation	10,000
9.		Internet Service Authorisation (National	10,000

S. No.	Category of Service Authorisations	Service Authorisation	Processing Fee (in Rs.)
		Area)	
10.		Internet Service Authorisation (Telecom circle/ Metro Area)	10,000
11.		Long Distance Service Authorisation	10,000

3.44. Keeping in view the extant licensing framework, past recommendations by TRAI and Draft rules notified by DoT, the Authority solicits the views of stakeholders on the following sets of questions:

Issue for consultation:

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

3.45. The above sections have dealt with financial conditions pertaining to regulation and treatment of charges paid by Service authorised entities to SCN authorised entities, related aspects of revenue and deductions, consequential definitions of GR/ ApGR & AGR, charging mechanism for Spectrum Charges as well as other financial conditions related to Minimum Equity and Networth requirements, Entry Fees, Authorisation Fees, Bank Guarantees, Application Processing Fees. Regarding any other financial terms and conditions which

should be applicable for the proposed SCN Authorisation, the following question is posed for soliciting stakeholders' comments:

Issue for consultation:

Q43. Apart from the financial provisions discussed earlier, are there any other financial terms and conditions that should be made applicable for the proposed Satellite Communication Network authorisation? Kindly provide a detailed response with justifications.

CHAPTER IV: ISSUES FOR CONSULTATION

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

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.

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.

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

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

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.

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.

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

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

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

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

Kindly provide a detailed response with justification.

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.

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

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

Kindly provide a detailed response with justification.

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

(a) Spectrum in the frequency bands allocated for FSS

(b) Spectrum in the frequency bands allocated for MSS

(c) Any other?

Kindly provide a detailed response with justification.

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

(a) <u>NGSO-based FSS and GSO/ NGSO-based MSS</u>: Whether in respect of NGSO-based FSS and GSO/ NGSO-based MSS, TRAI's recommendations dated 09.05.2025 on 'Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services' to DoT (read with the TRAI's response dated 08.12.2025 to DoT's back-reference dated 12.11.2025) should be made applicable to SCN authorised entities with necessary modifications? If yes, what modifications would be required in the terms and conditions for the assignment of spectrum for NGSO-based FSS and GSO/ NGSO-based MSS? If no, what should be the terms and conditions for this purpose?

(b) <u>GSO-based FSS</u>: 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.

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.

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.

Q16. In case it is decided to permit the proposed SCN authorised entity to utilize the FSS spectrum and/ or MSS spectrum assigned to a service authorised entity ("partnering entity") for the purpose of providing SCNaaS to the partnering entity –

whether there is a need to establish a policy and regulatory framework for enabling the SCN authorised entity to enter into an agreement/ arrangement with the partnering entity to utilize FSS spectrum and/ or MSS spectrum assigned to such partnering entity for the purpose of providing SCNaaS to the partnering entity?

(i) If yes, what should be the terms and conditions under such a framework?

(ii) If no, in what manner such agreements/ arrangements should be enabled and regulated?

Kindly provide a detailed response with justification.

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.

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.

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

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

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

(c) For the frequency bands identified for IMT where D2D is decided to be permitted, whether the National Frequency

Allocation Plan (NFAP) should be modified to include MSS on a secondary basis? If yes, kindly furnish your suggestion for the proposed modification(s).

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

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

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

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

(iii) Any other method?

Kindly provide a detailed response with justification.

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.

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.

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.

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.

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.

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

Q26. If the answer to the above question is no, please suggest the methodology for considering such charges in determination of AGR of both the service authorised and SCN authorised entities, for purposes of levying Authorisation/ License fees & Spectrum Charges? Please provide your response with justification.

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.

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?

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.

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.

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.

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.

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.

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.

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.

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.

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

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.

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.

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

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.

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

Q43. Apart from the financial provisions discussed earlier, are there any other financial terms and conditions that should be made applicable for the proposed Satellite Communication Network authorisation? Kindly provide a detailed response with justifications.

ANNEXURES

Annexure 1.1: DoT's Reference dated 26.07.2024 on the 'Terms and Conditions of Network Authorizations to be Granted under the Telecommunications Act, 2023'

F. No. 20-1350/2024 AS-I (Vol.-II)
Government of India
Ministry of Communications
Department of Telecommunications
(Licensing Policy Division)
20-Ashoka Road, New Delhi-110001

Dated: 26.07.2024

Subject: Seeking recommendations of TRAI on terms and conditions, including fees or charges, for authorisation to establish, operate, maintain or expand telecommunication network as per the provisions of the Telecommunications Act 2023 - regarding

Reference: Reference vide F. No. 20-1350/2024 AS-I (Vol.-II) dated 21.06.2024 for seeking recommendations of TRAI on terms and conditions, including fees or charges, for authorisation to provide telecommunication services as per the provisions of the Telecommunications Act 2023 (enclosed)

The Telecommunications Act, 2023 has been published in the Official Gazette of India. It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint and different dates may be appointed for different provisions of this Act. Section 3(1)(b) of the Act provides for obtaining an authorisation by any person intending to establish, operate, maintain or expand telecommunication network, subject to such terms and conditions, including fees or charges, as may be prescribed. A background note on related aspects in this regard including relevant sections of the Telecommunications Act, 2023 that may have bearing on the terms and conditions of authorisations is attached as Annexure to this reference.

2. In this regard, under Section 11(1)(a) of the TRAI Act, 1997 (as amended), TRAI is requested to provide its recommendations within 60 days of receipt of this reference on terms and conditions, including fees or charges, for authorisation to establish, operate, maintain or expand telecommunication network as per the provisions of the Telecommunications Act 2023.

3 This has the approval of the competent authority.

Encl: As above

26/7/24

(Sunil Kumar Singhal)
Deputy Director General (LP)
Phone: 23036836

To,

The Secretary
Telecom Regulatory Authority of India
7th Floor, Tower-F,
World Trade Centre, Nauroji Nagar,
New Delhi: 110029

Annexure

Background Note

1. Section 3(1)(a) and 3(1)(b) of the Telecommunications Act 2023 provide for authorizations to provide telecommunication services and to establish, operate, maintain or expand telecommunication network respectively. As per Section 2 of the Telecommunications Act 2023, telecommunication, telecommunication network and telecommunication service are defined as follows:

   (p) "telecommunication" means transmission, emission or reception of any messages, by wire, radio, optical or other electro-magnetic systems, whether or not such messages have been subjected to rearrangement, computation or other processes by any means in the course of their transmission, emission or reception;

   (s) "telecommunication network" means a system or series of systems of telecommunication equipment or infrastructure, including terrestrial or satellite networks or submarine networks, or a combination of such networks, used or intended to be used for providing telecommunication services, but does not include such telecommunication equipment as notified by the Central Government;

   (t) "telecommunication service" means any service for telecommunication;

2. A reference dated 21.06.2024, to TRAI, has been sent for seeking its recommendations on terms and conditions, including fees or charges, for authorisation to provide telecommunication services under section 3(1)(a) of the Telecommunications Act 2023. List of the extant licenses, registrations, and permissions being granted under the Indian Telegraph Act 1885 is provided in this reference.

3. Section 3(2) of the Telecommunications Act 2023 provides for different terms and conditions of authorisation for different types of telecommunication services and telecommunication network.

4. Section 3(5) of the Telecommunications Act 2023 provides that any authorised entity may undertake any merger, demerger or acquisition, or other forms of restructuring, subject to any law for the time being in force and any authorised entity that emerges pursuant to such process, shall comply with the terms and conditions, including fees and charges, applicable to the original authorised entity, and such other terms and conditions, as may be prescribed.

5. Section 3(6) of the Telecommunications Act 2023 provides that a licence, registration, permission, by whatever name called, granted prior to the appointed day under the Indian Telegraph Act, 1885, in respect of provision of telecommunication services shall be entitled to continue to operate under the terms and conditions and for the duration as specified under such licence or registration or

permission, or to migrate to such terms and conditions of the relevant authorisation, as may be prescribed.

6. TRAI Recommendations on 'Rationalization of Entry Fee and Bank Guarantees' dated 19.09.2023 have been received and same are under consideration of the Government. Meanwhile, a reference dated 21.06.2024, to TRAI, has been sent for seeking its recommendations on terms and conditions, including fees or charges, for authorisation to provide telecommunication services under section 3(1)(a) of the Telecommunications Act 2023.

   Another reference for seeking recommendations of TRAI on terms and conditions, including fees or charges, for authorisation to establish, operate, maintain or expand telecommunication network under section 3(1)(b) of the Telecommunications Act 2023, is being sent along with this note.

   Accordingly, the issues relating to Entry Fee and Bank Guarantees may also be revisited along with the fee or charges for different types of authorizations.

7. While formulating recommendations, TRAI may also consider following:
   i. Type, scope, and terms & conditions of each authorization to be granted under section 3(1)(a) and 3(1)(b) respectively.
   ii. Some of the recommendations of TRAI, which are under consideration presently, like recommendations on 'DCIP', 'IXP', 'CDN', 'SESG', 'IBS (In-Building Solutions)' etc., which primarily relate to establishing telecommunication networks, and these authorised entities would provide telecommunication networks as a service to authorized entities under section 3(1)(a) only.
   iii. Reference agreement between authorized entities establishing, operating, maintaining or expanding the telecommunication network and authorized entities providing telecommunication services.
   iv. Latest developments in the field of telecommunications such as cloud hosted telecommunication networks being used to provide Unified Communications as a Service (UCaaS) & Communications Platform as a Service (CPaaS), virtualisation of telecommunication networks, Ground Station as a Service (GSaaS) as envisaged under the Indian Space Policy 2023, etc.
   v. Rationalization of Entry Fee and Bank Guarantees for various authorizations in view of the provisions of the Telecommunications Act 2023.

8. Many other Sections of the Telecommunications Act 2023 may have, either direct or indirect, linkages with the terms and conditions of the authorisation to establish, operate, maintain or expand telecommunication network. Some of these Sections of the Telecommunications Act 2023 are 4 to 9, 19 to 24, 32 to 42, 44, 45, 49, and 55. Many terms and conditions of the extant licensing and regulatory framework relates to different Sections of the Telecommunications Act 2023. Further, some of the terms and conditions may be required to be amended/incorporated in light of certain new provisions in this Act and policy/Act in related sectors such as Space. The possibility of reducing the number of authorisations and simplification/merger/rationalization of the terms and conditions to improve Ease of Doing Business, may also be examined.

F. No. 20-1350/2024 AS-I (Vol.-II)
Government of India
Ministry of Communications
Department of Telecommunications
(Access Service Division)
20-Ashoka Road, New Delhi-110001

Dated: 21.06.2024

Subject: Seeking recommendations of TRAI on terms and conditions, including fees or charges, for authorisation to provide telecommunication services as per the provisions of the Telecommunications Act 2023 - regarding

The Telecommunications Act, 2023 has been published in the Official Gazette of India. It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint. Section 3(1)(a) of the Act provides for obtaining an authorisation by any entity/person intending to provide telecommunication services, subject to such terms and conditions, including fees or charges, as may be prescribed. A background note on related aspects in this regard including relevant sections of the new Act that may have bearing on the terms and conditions of authorisations is attached as Annexure to this reference.

2. In this regard, under Section 11(1)(a) of the TRAI Act, 1997 (as amended), TRAI is requested to provide its recommendations within 60 days of receipt of this reference on terms and conditions, including fees or charges, for authorisation to provide telecommunication services as per the provisions of the Telecommunications Act 2023.

3. This has the approval of the competent authority.

21/6/24

(Sanjeev Kumar Sharma)
Deputy Director General (AS)
Phone: 23036918

To,

The Secretary
Telecom Regulatory Authority of India
7th Floor, Tower-F,
World Trade Centre, Nauroji Nagar,
New Delhi: 110029

Annexure

Background Note

1. Section 3(1)(a) of the Telecommunications Act 2023 provides for obtaining an authorisation by any entity/person intending to provide telecommunication services, subject to such terms and conditions, including fees or charges, as may be prescribed.

2. Section 59 of the Telecommunications Act 2023 provides for amendment to the Telecom Regulatory Authority of India Act, 1997. It provides that *"licensee" means an authorised entity providing telecommunication services under the Telecommunications Act, 2023, or registered for providing cable television network under the Cable Television Networks (Regulation) Act, 1995 or any other Act for the time being in force."*

3. Currently the licensing and regulatory framework for different types of telecommunication services is being governed as per the provisions of the Indian Telegraph Act, 1885. The extant licenses/registrations are as follows :
    i. Access Service authorisation under Unified License (UL) and UL-Virtual Network Operator (UL-VNO)
    ii. Internet Service authorisation under UL and UL-VNO
    iii. National Long Distance (NLD) Service authorisation under UL and UL-VNO
    iv. International Long-Distance Service (ILD) Service authorisation under UL and UL-VNO
    v. Global Mobile Personal Communication by Satellite (GMPCS) Service authorisation under UL and UL-VNO
    vi. Public Mobile Radio Trunking Service (PMRTS) authorisation under UL and UL-VNO
    vii. Commercial VSAT CUG Service authorisation under UL and UL-VNO
    viii. Captive VSAT CUG authorisation (Standalone)
    ix. Audio Conferencing/ Audiotex/ Voice Mail Service authorisation under UL
    x. Machine to Machine (M2M) Service authorisation under UL and UL-VNO
    xi. M2M Service Provider registration
    xii. WPAN/WLAN Connectivity Providers Registration
    xiii. Resale of IPLC Service authorisation under UL-VNO
    xiv. Access Service Category-B authorisation under UL-VNO
    xv. CNPN Authorisation
    xvi. CMRTS Authorisation
    xvii. Rules for In-Flight and Maritime Connectivity (IFMC) permission
    xviii. IP-1 Registration
    xix. NOC for sale/rent of International Roaming SIM Cards
    xx. Mobile Number Portability (MNP) service license
    xxi. PM WANI service registration
    xxii. Captive Authorisations (on case-to-case basis)

4. Section 3(2) of the Telecommunications Act 2023 provides for different terms and conditions of authorisation for different types of telecommunication services.

5. Section 3(5) of the Telecommunications Act 2023 provides that any authorised entity may undertake any merger, demerger or acquisition, or other forms of restructuring,

subject to any law for the time being in force and any authorised entity that emerges pursuant to such process, shall comply with the terms and conditions, including fees and charges, applicable to the original authorised entity, and such other terms and conditions, as may be prescribed.

6. Section 3(6) of the Telecommunications Act 2023 provides that a licence, registration, permission, by whatever name called, granted prior to the appointed day under the Indian Telegraph Act, 1885, in respect of provision of telecommunication services shall be entitled to continue to operate under the terms and conditions and for the duration as specified under such licence or registration or permission, or to migrate to such terms and conditions of the relevant authorisation, as may be prescribed.

7. Many other Sections of the Telecommunications Act 2023 may have, either direct or indirect, linkages with the terms and conditions of the authorisation for providing telecommunication services. Some of these Sections of the Telecommunications Act 2023 are 4 to 9, 19 to 24, 28 to 42, 44, 45, 49, and 55. Many terms and conditions of the extant licensing and regulatory framework relates to different Sections of the Telecommunications Act 2023. Further, some of the terms and conditions will be required to be amended/incorporated in light of certain new provisions in this Act and policy/Act in related sectors such as Space. The possibility of reducing the number of authorisations and simplification/merger/rationalization of the terms and conditions to improve Ease of Doing Business, may also be examined.

Annexure 1.2: DoT's Reference dated 17.10.2024 for an Authorisation for Satellite Communication Network under Section 3(b) of the Telecommunications Act, 2023

F. No. 20-1350/2024 AS-I (Vol.-II)
Government of India
Ministry of Communications
Department of Telecommunications
(Licensing Policy Division)
20-Ashoka Road, New Delhi-110001

Dated: 17.10.2024

Subject: Seeking recommendations of TRAI on terms and conditions, including fees or charges, for authorisation to establish, operate, maintain or expand telecommunication network as per the provisions of the Telecommunications Act 2023 – regarding

Reference: Reference vide F. No. 20-1350/2024 AS-I (Vol.-II) dated 26.07.2024 for seeking recommendations of TRAI on terms and conditions, including fees or charges, for authorisation to establish, operate, maintain or expand telecommunication network as per the provisions of the Telecommunications Act 2023 (enclosed)

1. As per the background note of the reference dated 26.07.2024, in para 7(ii), TRAI has been requested to consider its earlier recommendations on Satellite Earth Station Gateway (SESG) also, while formulating the recommendations sought vide reference dated 26.07.2024.

2. In this regard, keeping in view the increasing use of NTN (Non terrestrial networks) including satellite communication networks in provisioning of FSS (Fixed Satellite Services) including VSAT services and MSS (Mobile Satellite Services), TRAI may consider an authorisation for satellite communication network under section 3(1)(b) of the Telecommunications Act 2023 along with the following:

    a. Terms and conditions relating to such authorisation
    b. Provision of assignment of spectrum for both feeder link as well as user link under such authorisation
    c. Service area of such authorisation

3. This authorisation for satellite communication network under section 3(1)(b) of the Telecommunications Act 2023 may be used to provide services to entities authorised under section 3(1)(a) of the Telecommunications Act 2023.

4. It is also requested to expedite the recommendations sought vide reference dated 26.07.2024 as the statutory 60 days period has already expired.

5. This issues with the approval of competent authority.

Encl: As above

17/10/24

(Sunil Kumar Singhal)
Deputy Director General (LP)
Phone: 23036836

To,

The Secretary
Telecom Regulatory Authority of India
7th Floor, Tower-F,
World Trade Centre, Nauroji Nagar,
New Delhi: 110029

Annexure 1.3: DoT's Reference dated 29.08.2025 to TRAI's Response to the Back-Reference dated 03.07.2025

Government of India
Ministry of Communications
Department of Telecommunications
Sanchar Bhawan, 20, Ashoka Road, New Delhi - 110001
(Licensing Policy Wing)
****

F.No.: 20-1353/2025 - LPA Dated: 29.08.2025

Subject: Request for expeditious submission of terms and conditions of proposed Satellite Communication Network (SCN) Authorisation, including spectrum assignment, under Section 3(1)(b) of the Telecommunications Act, 2023 – reg.

This has reference to TRAI's response dated 13.08.2025 to the DoT's back reference dated 03.07.2025 regarding TRAI's recommendations on *"the Terms and Conditions of Network Authorisations to be Granted under the Telecommunications Act, 2023"*.

2. Attention is particularly invited to paragraphs 2.131.7 & 2.131.8 in Section-B of Chapter II of the said response, which pertains to the proposed Satellite Communication Network (SCN) Authorisation under section 3(1) (b) of the Telecommunications Act, 2023. The relevant extracts are reproduced below:

> *"2.131.7 In this regard, the Authority has decided to initiate a fresh process of consultation with stakeholders to solicit views on terms and conditions for Satellite Communication Network (SCN) authorisation, including the provision of assignment of spectrum for both feeder link as well as user link under such authorisation. Upon the conclusion of the consultation process, the Authority would provide its recommendations on the matter to the Government.*
>
> *2.131.8 In case upon the conclusion of the consultation process, the Authority recommends that the spectrum for feeder link and/ or user link should be assigned under SCN Authorisation, the Government may thereafter, if deemed fit, seek the recommendations of the Authority on the terms and conditions for the assignment of spectrum under SCN Authorisation."*

3. It is stated that, as highlighted in TRAI's recommendations dated 17.02.2025, the matter related to the proposed authorisation for satellite communication network (SCN) has already been subjected to a consultation process through the *Consultation Paper issued* by TRAI on 22.10.2024. Further, a considerable period has elapsed since the DoT's reference on the introduction of a Satellite Communication Network (SCN) Authorisation under section 3(1) (b) of the Act dated 17.10.2024 and requesting TRAI to provide terms and conditions for Satellite Communication Network (SCN) authorisation including provision of assignment of spectrum for both feeder link as well as user link and service area under such authorisation.

4. Keeping in view the above, and the need to frame the rules under the Telecommunications Act, 2023 in a time-bound manner, it is desired that the matter be expedited and the complete terms and conditions for the proposed SCN Authorisation,

along with terms and conditions relating to the assignment of spectrum, be provided in a consolidated form, covering all aspects all together at once as sought earlier, within 60 days.

5. This has the approval of the Hon'ble Minister for Communications.

29/08/25

(Sunil Kumar Singhal)
Deputy Director General (Licensing Policy)
Phone: 23036836

To,

The Secretary
Telecom Regulatory Authority of India
7th Floor, Tower-F,
World Trade Centre, Nauroji Nagar,
New Delhi: 110029

Annexure 1.4: DoT's Clarification Letter dated 07.10.2025

F. No. 20-443/2023-AS-I(Vol.-III)
Government of India
Ministry of Communications
Department of Telecommunications
(Licensing Policy Wing)
20-Ashoka Road, New Delhi-110001
****

Dated: 07-10-2025

Subject: Clarification on TRAI's Letter regarding DoT's Reference on terms and conditions of the proposed Satellite Communication Network (SCN) Authorisation, including spectrum assignment

This is in reference to your letter No. R-13/1/(2)/2025-NSL-II(E-16802) dated 22.09.2025 seeking clarification on spectrum related issues mentioned under para 7 and 8.

2. With reference to para 7, it is submitted that, the First Schedule of The Telecommunications Act, 2023, is a list of entries based on use of the spectrum. Where the use of the spectrum is covered within the scope of an entry in the First Schedule, the assignment of such spectrum may be undertaken by administrative process.

2.1 An entity holding a SCN (Satellite Communication Network) authorisation seeks assignment of spectrum for use that falls within the scope of any of the entries of the First Schedule, it can be assigned spectrum through administrative method. Accordingly, an SCN Authorised Entity seeking to use spectrum for In-flight Maritime Connectivity, may apply for administrative assignment under Entry 14 of the First Schedule. An SCN Authorised Entity seeking to use spectrum for the satellite-based services under Entry 16, such as Very Small Aperture Terminal, Global Mobile Personal Communication by Satellites, National Long Distance, International Long Distance, Mobile Satellite Services in L & S bands, can apply for spectrum assignment under Entry 16.

2.2 It may also be possible that a SCN Authorised Entity without seeking spectrum may enter into sharing agreements with another authorised entity availing of its satellite network (the "partnering entity"), to utilise the spectrum assigned to such partnering entity for the limited purpose of providing the service of its satellite-based networks.

3. With reference to para 8, at present, spectrum assignments for different kind of telecommunication services are being made in the L, C, Ku and Ka bands. Also, based on the TRAI recommendations dated 09.05.2025, other frequency bands i.e. Q-band and V-band are also being considered for different kind of

telecommunication services.

This has the approval of the competent authority.

Digitally signed by
Rajat Jain
Date: 07-10-2025
16:36:04

(Rajat Jain)
ADET (LPA)
Email: adet1.lpa-dot@gov.in

To,

The Secretary
Telecom Regulatory Authority of India
7th Floor, Tower-F,
World Trade Centre, Nauroji Nagar,
New Delhi: 110029

Annexure 2.1: Scope of Various Service Authorisations and Network Authorisations Proposed by DoT in the Draft Rules

A. Scopes of Main Services Authorisations

(1) Scope of Unified Service Authorisation

1. The provisions of this Part A shall apply to authorised entities holding unified service authorisations.

2. The scope of unified service authorisation for NSO comprises the scope of:
   (a) access service authorisation for NSO;
   (b) internet service authorisation for NSO; and
   (c) long distance service authorisation for NSO.

3. The scope of unified service authorisation for VNO comprises the scope of:
   (a) access service authorisation for VNO
   (b) internet service authorisation for VNO; and
   (c) long distance service authorisation for VNO.

4. An authorised entity holding a unified service authorisation may provide the telecommunication services specified under sub-rule (2) or sub-rule (3), as the case may be, through wireline or wireless terrestrial networks, satellite networks including non-terrestrial networks and GMPCS networks, or submarine networks.

5. The specific terms and conditions specified under these rules for access service authorisation, internet service authorisation and long-distance service

authorisation, shall be applicable for providing the respective telecommunication services under the unified service authorisation, unless specified otherwise for unified service in this Part A of Chapter 8.

6. An authorised entity holding a unified service authorisation, shall only provide services under the scope of its authorisation, and not any other service(s) which requires a separate authorisation from the Central Government.

VNO Authorised to provide unified services

7. A VNO authorised to provide unified service shall follow the terms and conditions of the unified service authorisation along with the following specific conditions:
   (a) The VNO may enter into mutual agreements as specified in sub-rule (3) and sub-rule (4) of rule 5, to connect its network to its parent NSO's network and provide the details of such agreements to the Central Government, and update any modifications to such agreements, within seven days, in the manner as specified on the portal.
   (b) The VNO shall not interconnect with telecommunication networks of any other NSO, other than its parent NSO, and any interconnection with other authorised telecommunication networks shall be undertaken only by its parent NSO.
   (c) The other conditions as applicable to VNO for access service, VNO for internet service and VNO for long distance service shall also be applicable to the VNO for unified service for providing the respective telecommunication services.

(2) Scope of Access Service Authorisation

1. The provisions of this Part B shall apply to authorised entities holding access service authorisation.

2. The scope of access service authorisation for NSO comprises of the following:
   (a) transmission, emission or reception of voice and non-voice messages, including video messages;
   (b) scope of the internet service authorisation;
   (c) scope of the enterprise communication service authorisation, as specified under the rules for miscellaneous telecommunication services;
   (d) internet telephony service;
   (e) intra-circle long distance calls; and
   (f) Captive Non-Public Network (CNPN) as a telecommunication service.

3. The scope of access service authorisation for VNO comprises of the following:
   (a) transmission, emission or reception of voice and non-voice messages, including video messages;
   (b) scope of the internet service authorisation for VNO;
   (c) scope of the enterprise communication service authorisation, as specified under the rules for miscellaneous telecommunication services;
   (d) internet telephony service; and
   (e) intra-circle long distance calls.

4. An authorised entity may provide the telecommunication services specified under sub-rule (2) or sub- rule (3) to users over:
   (a) mobile terminals;
   (b) fixed wireline access terminals;
   (c) fixed wireless access terminals;

(d) FSS (Fixed Satellite Service) terminals including VSAT (Very Small Aperture Terminal) and Earth Station in Motion terminals;
(e) MSS (Mobile Satellite Service) terminals;
(f) machines including IoT devices and sensor type terminals;
(g) routers or switches; or
(h) any other type of terminal as specified on the portal, for this purpose.

5. An authorised entity holding an access service authorisation may provide the telecommunication services specified under sub-rule (2) or sub-rule (3), as the case may be, through wireline or wireless terrestrial networks, satellite networks including non-terrestrial networks and GMPCS network, or submarine networks.

6. The scope of the wireline access service authorisation for VNO shall be restricted to the scope of the access service authorisation for VNO using the wireline access network, and such authorised entity may provide the telecommunication services to users over fixed wireline access terminals only.

7. An authorised entity holding an access service authorisation, shall only provide services authorised under the scope of its authorisation, and not any other telecommunication services which may require a separate authorisation from the Central Government.

8. The specific terms and conditions specified under these rules for internet service authorisation except for limited internet telephony, and enterprise communication service authorisation under the rules for miscellaneous telecommunication services, shall be applicable for providing the respective telecommunication services under the access service authorisation, unless specified otherwise for access service in this Part B of Chapter 8.

VNO authorised to provide Access Service

9. A VNO authorised to provide access service shall follow the terms and conditions of access service authorisation along with the following specific conditions:

(a) The VNO may enter into mutual agreements as specified in sub-rule (3) and sub-rule (4) of rule 5, to connect its network to its parent NSO's network and provide the details of such agreements, and update any modifications to such agreements, within seven days, in the manner as specified on the portal.

(b) The VNO shall not interconnect with telecommunication networks of any other NSO, other than its parent NSO, and any interconnection with other authorised telecommunication networks shall be undertaken only by its parent NSO;

(c) The VNO shall not integrate the telecommunication networks obtained from different NSOs for routing of traffic from one NSO to another NSO;

(d) The VNO shall obtain from its parent NSO a range of telecommunication identifiers from the telecommunication identifiers allocated to its parent NSO by the Central Government:

Provided that, VNO may obtain location routing numbers from the Central Government.

(e) The VNO shall not be assigned any spectrum however, such VNO may establish its radio access network as per the mutual agreement with its parent NSO, utilising backhaul spectrum and access spectrum of its parent NSO.

(f) The VNO shall comply with such security conditions as applicable to its telecommunication network and telecommunication services.

(g) The specific terms and conditions specified under these rules for internet service authorisation for VNO except for limited internet telephony, and

enterprise communication service authorisation under the rules for miscellaneous telecommunication services, shall be applicable for providing the respective telecommunication services under the access service authorisation for VNO, unless specified otherwise for VNO authorised to provide access service in this Part B of Chapter 8.

VNO authorised to provide Wireline Access Service

10. The VNO having Wireline Access Service authorisation shall follow the relevant terms and conditions as applicable for provision of wireline access services.

(3) Scope of Internet Service Authorisation

1. The provisions of this Part C shall apply to authorised entities holding internet service authorisation.

2. The scope of internet service authorisation for NSO comprises of the following:
   (a) Internet service;
   (b) Limited internet telephony service through public internet using Personal Computers (PC) or IP based Customer Premises Equipment (CPE) connecting only the following:
      (i) PC to PC, within or outside India;
      (ii) PC, device, or adapter, conforming to notified standards, in India to Public Switched Telecommunication Network (PSTN) or Public Land Mobile Network (PLMN) user terminals outside India; and
      (iii) Any PC, device or adapter, conforming to notified standards, connected in India with internet node using static Internet Protocol (IP) address to similar PC, device, or adapter, within or outside India.

(c) Domestic Leased circuit;

(d) Internet Lease Line (ILL);

(e) M2M service;

(f) Internet Protocol Television (IPTV) service; and

(g) Scope of IFMC service authorisation, limited to Internet service, under the rules for miscellaneous telecommunication services.

3. The scope of internet service authorisation for VNO shall comprises of the following:

(a) Internet service;

(b) Limited internet telephony service through public internet using Personal Computers (PC) or IP based Customer Premises Equipment (CPE) connecting only the following:

(i) PC to PC, within or outside India;

(ii) PC, device, or adapter, conforming to notified standards, in India to Public Switched Telecommunication Network (PSTN) or Public Land Mobile Network (PLMN) user terminals outside India; and

(iii) Any PC, device or adapter, conforming to notified standards, connected in India with internet node using static Internet Protocol (IP) address to similar PC, device, or adapter, within or outside India.

(c) Domestic Leased circuit;

(d) Internet Leased Line (ILL);

(e) M2M service; and

(f) Internet Protocol Television (IPTV) service.

4. An authorised entity may provide the telecommunication services specified under sub-rule (2) or sub-rule (3) to fixed users over:

(a) fixed wireline access terminals;

(b) fixed wireless access terminals;

(c) FSS (Fixed Satellite Service) terminals including VSAT (Very Small Aperture Terminal) and Earth Station in Motion terminals;

(d) machines including IoT devices and sensor type terminals;

(e) routers or switches; or

(f) any other type of terminal as specified on the portal, for this purpose.

5. A NSO may provide:

(a) bandwidth to other authorised entities or licensees for connecting their telecommunication network equipment, including backhaul connectivity; and

(b) internet bandwidth to another authorised entity or licensee, authorised to provide internet service.

6. An authorised entity may provide M2M service to another authorised entity or licensee, authorised to provide M2M communication services under applicable rules.

7. An authorised entity may provide the telecommunication services specified under sub-rule (2), sub-rule (3), sub-rule (5), or sub-rule (6), as the case may be, through wireline or wireless terrestrial networks, satellite networks, or submarine networks.

8. A NSO may establish, operate, maintain or expand the Internet Exchange Point (IXP) to provide the authorised telecommunication services.

9. A NSO seeking to establish, operate, maintain or expand the International Internet Gateway (IIG) to provide authorised telecommunication services,

shall apply to the Central Government, in the form and manner as specified on the portal and shall obtain separate security clearances in this regard.

10. The Central Government may, on assessment of the application under sub-rule (9), grant a written approval to such NSO.

11. An authorised entity with International Internet Gateway may sell International Internet bandwidth to other NSOs providing internet service.

12. An authorised entity may establish, operate, maintain or expand Low Power Wide Area Network (LPWAN) or an equivalent network using spectrum exempted from the requirement of assignment under sub-section (6) or sub-section (7) of section 4 of the Act, for providing M2M service using wireless terrestrial networks.

13. An authorised entity holding an internet service authorisation, shall only provide services authorised under the scope of its authorisation, and not any other service(s) which may require a separate authorisation from the Central Government.

14. The terms and conditions specified under the rules applicable for miscellaneous telecommunication services, as applicable for M2M service or IFMC service authorisations, shall be applicable for providing M2M service or IFMC service under the internet service authorisation, unless specified otherwise for internet service in this Part C of Chapter 8.

VNO authorised to provide Internet Service

15. A VNO authorised to provide internet service shall follow the terms and conditions of the internet service authorisation, as applicable, along with the following specific conditions:

(a) The VNO may enter into mutual agreements as specified in sub-rule (3) and sub-rule (4) of rule 5, to connect its network to its parent NSO's network and provide the details of such agreements, and update any modifications to such agreements, within seven days, in the manner as specified on the portal.

(b) The VNO shall not interconnect with telecommunication networks of any other NSO, other than its parent NSO, and any interconnection with other authorised telecommunication networks shall be undertaken only by its parent NSO.

(c) The VNO may obtain IP addresses, domain names and any other relevant requirements either from its NSO or authorised internet registries, and it may get the IP addresses, obtained from authorised internet registries, configured in the telecommunication network of its parent NSO(s) and the details of such IP addresses shall be submitted to the Central Government, in the form and manner, as may be specified.

(d) The VNO shall comply with such security conditions as applicable to its telecommunication network and telecommunication services.

(e) The VNO having connectivity from multiple NSOs may be required to install lawful interception system and lawful interception and monitoring facilities, as specified by the Central Government, and in such cases, the authorised entities providing upstream bandwidth may not be required to monitor such internet bandwidth.

(f) The VNO may provide domestic leased circuit to its users by:

(i) connecting its telecommunication equipment to the

telecommunication network of its parent NSO; or

(ii) using the telecommunication network of its parent NSO.

(4) Scope of Long Distance Service Authorisation

1. The provisions of this Part D shall apply to authorised entities holding long distance service authorisation.

2. The scope of long distance service authorisation for NSO comprises the following:

   (a) National Long Distance (NLD) service comprising the following:

      (i) carriage of bearer telecommunication traffic within India;

      (ii) carriage of intra-circle and inter-circle long distance calls;

      (iii) domestic leased circuit; and

      (iv) domestic calling card.

   (b) International Long Distance (ILD) service comprising the following:

      (i) carriage of bearer telecommunication traffic outside India;

      (ii) carriage of international long-distance calls to or from foreign carriers;

      (iii) International Private leased Circuit (IPLC); and

      (iv) international calling card.

3. The scope of long distance service authorisation for VNO shall comprise the following:

   (a) National Long Distance (NLD) service of following types:

      (i) carriage of bearer telecommunication traffic within India;

      (ii) carriage of intra-circle and inter-circle long distance calls;

      (iii) domestic leased circuit; and

      (iv) domestic calling card.

(b) International Long Distance (ILD) service of the following types:

(i) carriage of bearer telecommunication traffic outside India;

(ii) carriage of international long-distance calls to or from foreign carriers;

(iii) International Private Leased Circuit (IPLC); and

(iv) international calling card.

4. A NSO may provide:

(a) domestic bandwidth on lease to other authorised entities or licensees who are permitted to have such connectivity under their respective authorisation; and

(b) international bandwidth on lease to other authorised entities or licensees who are permitted to have such connectivity under their respective authorisation.

5. A NSO may establish, operate, maintain or expand the cable landing station (CLS) or cable landing station - point of presence (CLS-PoP) after obtaining requisite security clearance and prior written approval from the Central Government, for domestic and international submarine cable systems, to provide telecommunication services.

6. A NSO may establish, operate, maintain or expand the international long distance (ILD) gateway or international internet gateway (IIG), after obtaining requisite security clearance and prior written approval from the Central Government, to provide telecommunication services.

7. An authorised entity may provide the telecommunication services specified under sub-rule (2), sub-rule (3) and sub-rule (4), as the case may be, through

wireline or wireless terrestrial networks, satellite networks, or submarine networks.

8. An authorised entity may access the users directly for provisioning of domestic leased circuit, domestic calling cards, International Private Leased Circuit (IPLC), or international calling card.

9. An authorised entity shall only provide telecommunication services authorised under the scope of its authorisation, and not any other service which may require a separate authorisation from the Central Government.

VNO authorised to provide Long Distance Service

10. A VNO authorised to provide long distance service shall follow the terms and conditions of the long distance service authorisation along with the following specific conditions:

(a) The VNO may enter into mutual agreements as specified in sub-rule (3) and sub-rule (4) of rule 5, to connect its network to its parent NSO's network and provide the details of such agreements, and update any modifications to such agreements, within seven days, in the manner as specified on the portal;

(b) The VNO shall not interconnect with telecommunication networks of any other NSO, other than its parent NSO, and any interconnection with other authorised telecommunication networks shall be undertaken only by its parent NSO.

(c) The VNO shall comply with such security conditions as applicable to its telecommunication network and telecommunication services.

(d) The VNO may provide domestic leased circuit to its users by:

(i) connecting its telecommunication equipment to the telecommunication network of its parent NSO; or

(ii) using the telecommunication network of its parent NSO.

B. Scopes of Miscellaneous Services Authorisations

(1) Scope of Public Mobile Radio Trunking Service (PMRTS) Authorisation

1. The provisions of this Part A shall apply for authorised entities holding public mobile radio trunking service authorisations.

2. For the purpose of Part A of Chapter 6:
"Public Mobile Radio Trunking Service" or "PMRTS" means a type of telecommunication service that enables two-way land mobile communication amongst users, using a pair of radio frequencies, allocated temporarily for the duration of the call, from a designated spectrum band assigned to the PMRTS system, through a base station.

3. The scope of public mobile radio trunking service authorisation comprises of Public Mobile Radio Trunking Service (PMRTS).

4. An authorised entity holding a PMRTS authorisation may provide the telecommunication service specified under sub-rule (3) through wireless terrestrial networks.

5. An authorised entity holding a PMRTS authorisation, shall only provide telecommunication services under the scope of its authorisation, and not any other telecommunication service(s) which require a separate authorisation from the Central Government.

(2) Scope of Enterprise Communication Service Authorisation

1. The provisions of this Part B shall apply to authorised entities holding enterprise communication service authorisation.

2. For the purpose of Part B of Chapter 6:
   (a) "audio conferencing service" means a telecommunication service that allows multiple users to join a single audio conference and interact at the same time by providing real-time transmission of voice amongst such users;
   (b) "audiotex service" means a telecommunication service that is either an interactive or a non-interactive, non-real time, telecommunication service which provides to users, through standardized procedures, capability to communicate with an audiotex database via telecommunication network;
   (c) "cloud based EPABX service" means providing EPABX-as-a-Service or Communications Platform- as-a-Service (CPaaS) to users; and
   (d) "voice mail service" means a telecommunication service providing access of voice mailbox attached to a unique telecommunication identifier to a user.

3. The scope of enterprise communication service authorisation comprises of the following telecommunication services provided to users on commercial basis:
   (a) audio conferencing service;
   (b) audiotex service;
   (c) cloud-based EPABX service; and
   (d) voice mail service.

4. An authorised entity holding an enterprise communication service authorisation, shall only provide telecommunication services authorised under the scope of its authorisation, and not any other telecommunication services which may require a separate authorisation from the Central Government.

(3) Scope of Machine to Machine (M2M) Service Authorisation

1. The provisions of this Part C shall apply to authorised entities holding Machine to Machine (M2M) service authorisation.

2. The scope of Machine to Machine (M2M) service authorisation comprises of the following:
   (a) Machine to Machine (M2M) service;
   (b) Establish, operate, maintain or expand Wireless Personal Area Network (WPAN) or Wireless Local Area Network (WLAN) using spectrum exempted from the requirement of assignment under sub- section (6) or sub-section (7) of section 4 of the Act; and
   (c) Own and manage a platform for subscription profile management of M2M e-SIM.

3. An authorised entity holding a M2M service authorisation, shall only provide telecommunication services authorised under the scope of its authorisation, and not any other telecommunication service(s) which may require a separate authorisation from the Central Government.

(4) Scope of PM-WANI Service Authorisation

1. For the purpose of Part D of Chapter 6:
   (a) "app provider" means a person that develop an application to register

user(s) and discover PM-WANI complaint Wi-Fi hotspots in the nearby area and display the same within the application for accessing the internet service;

(b) "central registry" means the registry maintained by the Central Government, or a person approved by the Central Government, containing information about the PDOs, PDOAs, and App Providers, in accordance with standards and specifications as specified by the Central Government;

(c) "public data office" or "PDO" means a person that establish, maintain, and operate PM-WANI complaint Wi-Fi access points and deliver internet services to user(s); and

(d) "public data office aggregator" or "PDOA" means a person that acts as an aggregator of PDOs and perform the functions relating to authorisation and accounting.

2. The provisions of this Part D shall apply to authorised entities holding PM-WANI service authorisation.

3. The scope of PM-WANI service authorisation comprises the following:

(a) as Public Data Office Aggregator (PDOA):

(i) aggregate multiple Wi-Fi Access Network Interface (WANI) enabled Wi-Fi access points operated by individual PDOs registered with the central registry, with which it has entered into specific agreements for aggregation, accounting and related functions; and

(ii) authorise users, authenticated by the App Providers, to access the internet service through individual PDOs.

(b) as App provider, develop an App to:

(i) register and authenticate users; and

(ii) discover WANI compliant Wi-Fi hotspots in the nearby area and

display the same within the App for accessing the internet service.

4. An authorised entity providing the PM-WANI service may perform the functions of a PDOA or an App provider, or both.

5. An authorised entity shall only provide telecommunication services authorised under the scope of its authorisation, and not any other telecommunication service(s) which may require a separate authorisation from the Central Government.

(5) Scope of In-Flight and Maritime Connectivity (IFMC) Service Authorisation

1. The provisions of this Part E shall apply to authorised entities holding IFMC service authorisation.

2. IFMC service may be provided on ships or aircrafts using wireless media, and its scope shall comprise of the following:
   (a) transmission, emission or reception of voice or non-voice messages, including video messages; or
   (b) internet service.

3. In order to provide IFMC services, an entity holding IFMC service authorisation shall also be required:
   (a) in respect of services specified under clause (a) of sub-rule (2), to hold an access service authorisation and long distance service authorisation, or enter into a mutual agreement with another authorised entity providing access service and long distance service;
   (b) in respect of services specified under clause (b) of sub-rule (2), to hold

an access service authorisation or an internet service authorisation, and long distance service authorisation, or enter into a mutual agreement with another authorised entity providing access service or internet service, and long distance service.

4. An authorised entity may establish base station or Wi-Fi enabled local area network inside a ship or an aircraft, as the case may be, and connect such base station or Wi-Fi enabled local area network with the telecommunication network of such other authorised entity with whom an agreement has been entered into under sub-rule (3) to provide IFMC service.

5. An authorised entity holding an IFMC service authorisation, shall only provide telecommunication services under the scope of its authorisation, and not any other telecommunication service which may require a separate authorisation from the Central Government.

(6) Scope of Aeronautical Data Communication Service Authorisation

1. The provisions of this Part F shall apply to authorised entities holding Aeronautical Data Communication service authorisation.

2. For the purpose of Part F of Chapter 6:
   (a) "aeronautical data communication service" means the exchange of data between aircraft and ground station for the purpose of airline operational communication (AOC) or air traffic management (ATM) using the spectrum allocated for aeronautical mobile (Route) service in the NFAP; and
   (b) "aeronautical mobile (route) service" means an aeronautical mobile service reserved for communications relating to safety and regularity of

flight, primarily along national or international civil air routes.

3. The scope of aeronautical data communication service authorisation shall comprise of the data communication service between aircraft and ground stations.

4. An authorised entity may establish one or more ground stations in its service area to provide aeronautical data communication service, under sub-rule (2), to airline operators or air navigation service providers.

5. An authorised entity shall only provide telecommunication services authorised under the scope of its authorisation, and not any other telecommunication service which may require a separate authorisation from the Central Government.

(7) Scope of International SIM service authorisation

1. The provisions of this Part G shall apply to authorised entities holding International SIM service authorisation.

2. The International SIM service authorisation shall be in respect of international SIM service to an Indian user intending to visit abroad for a specified duration, the scope of which shall comprise of the following:
   (a) selling or renting of SIM of foreign telecommunication service providers; or
   (b) selling of global calling cards.

3. An authorised entity shall only provide telecommunication services authorised under the scope of its authorisation, and not any other telecommunication

service which may require a separate authorisation from the Central Government.

C. Scopes of Captive Services Authorisations

(1) Scope of Captive Mobile Radio Trunking Service (CMRTS) Authorisation

1. The provisions of this Part A shall apply to authorised entities holding captive mobile radio trunking service authorisation.

2. For the purpose of Part A of Chapter 6:

   (a) "Captive Mobile Radio Trunking Service" or "CMRTS" means a type of telecommunication service that enables two-way land mobile communication amongst users, using a pair of radio frequencies, allocated temporarily for duration of the call, from a designated spectrum band assigned to the CMRTS system, through a base station.

   (b) "land mobile service" means a type of telecommunication service that enables two-way land mobile communication amongst users, using a pair of radio frequencies, through a base station.

3. The scope of captive mobile radio trunking service authorisation comprises of:

   (a) Captive Mobile Radio Trunking Service (CMRTS), or

   (b) land mobile service.

4. An authorised entity holding a CMRTS authorisation shall use the authorisation for its own captive use within the geo-coordinates of the service area, and not

for providing public mobile radio trunking service or any other telecommunication service(s) which require a separate authorisation from the Central Government.

(2) Scope of Captive Non-Public Network (CNPN) Service Authorisation

1. The provisions of this Part B shall apply to authorised entities holding Captive Non-Public Network (CNPN) service authorisation.

2. The scope of CNPN service authorisation comprises of the authorisation to establish, operate, maintain or expand CNPN within the area of operation in the national service area, limited to geo coordinates of the logical perimeter of the occupied premise, either owned or leased, by the authorised entity, for captive non-public use;
   Provided that an authorised entity may establish a new CNPN at a different location, within the national service area, after giving prior intimation to the Central Government, in the form and manner as may be specified for this purpose, along with the geo-coordinates of the logical perimeter of such area of operation.

3. An authorised entity having more than one area of operation shall require only one CNPN service authorisation.

4. An authorised entity holding a CNPN service authorisation shall not use its telecommunication network to provide any commercial or public telecommunication service.

(3) Scope of Captive VSAT Service Authorisation

1. The provisions of this Part C shall apply to authorised entities holding captive VSAT service authorisation.

2. The scope of captive VSAT service authorisation comprises of the following:
   (a) establish, operate, maintain or expand satellite telecommunication network for captive use of telecommunication services using VSAT, including ESIM;
   (b) establish data connectivity, using the telecommunication network established under clause (a), amongst its own offices or sites.

3. An authorised entity holding a captive VSAT service authorisation shall not use its telecommunication network to provide any commercial or public telecommunication service.

(4) Scope of Captive General Service Authorisation

1. The provisions of this Part D shall apply to authorised entities holding captive general service authorisation.

2. The scope of captive general service authorisation comprises establishing, operating, maintaining, or expanding captive telecommunication network including wireline and wireless telecommunication networks for captive use.

3. The scope of this authorisation shall not include such captive telecommunication services for which a separate authorisation is granted under these rules.

D. Networks Authorisations

(1) Scope of Infrastructure Provider (IP) authorisation

1. The provisions of this Part A shall apply to authorised entities holding Infrastructure Provider (IP) authorisations.

2. An authorised entity having Infrastructure Provider (IP) authorisation may establish, operate, maintain or expand dark fibres, right of way (RoW), duct space, towers, poles and in-building solution (IBS) infrastructure.

3. An authorised entity holding an Infrastructure Provider (IP) authorisation, shall only establish the telecommunication network as authorised under the scope of its authorisation, and it shall not establish any other category of telecommunication network which may require a separate authorisation from the Central Government.

(2) Scope of Digital Connectivity Infrastructure Provider (DCIP) authorisation

1. The provisions of this Part B shall apply to authorised entities holding Digital Connectivity Infrastructure Provider (DCIP) authorisation.

2. For the purpose of Part B of Chapter 6:
   (a) "transmission link" means the transmission network required for interconnecting the systems of wireline access network, radio access network (RAN), Wireless Local Area Network (WLAN), or In- Building Solutions (IBS) with the core telecommunication network of the authorised entity to whom it is providing the wireline access network,

radio access network (RAN), Wireless Local Area Network (WLAN), or In-Building Solutions (IBS); and

(b) "Wireless Local Area Network" means a wireless telecommunication network whereby a user can connect to a local area network (LAN) through a wireless (radio) connection, as an alternative to a wired local area network.

3. The scope of DCIP authorisation comprises of the following:

(a) establish, operate, maintain, or expand telecommunication equipment and systems required for establishing wireline access network, radio access network (RAN), Wireless Local Area Network (WLAN), transmission link, or In-Building Solutions (IBS); and

(b) establish, operate, maintain, or expand dark fibers, right of way (RoW), duct space, towers, poles or in- building solution (IBS) infrastructure.

4. An authorised entity holding a DCIP authorisation, shall only establish the telecommunication network as authorised under the scope of its authorisation, and it shall not establish any other category of telecommunication network which may require a separate authorisation from the Central Government.

(3) Scope of Internet Exchange Point (IXP) provider authorisation

1. The provisions of this Part C shall apply to authorised entities holding Internet Exchange Point (IXP) provider authorisation.

2. The scope of IXP provider authorisation comprises of the following:

(a) establish, operate, maintain, or expand Internet Exchange Points (IXPs) in India;

(b) peering and exchange of internet traffic, originated and destined within

India, amongst the entities authorised to provide internet service under sub-section (1) of section 3 of the Act or licensees providing internet service under the Indian Telegraph Act 1885, and Content Delivery Networks (CDNs) located in India; and

(c) interconnect its IXP with the IXPs established, operated or maintained by other authorised entities or licensees under the Indian Telegraph Act, 1885.

3. An authorised entity holding an IXP provider authorisation, shall only establish the telecommunication network as authorised under the scope of its authorisation, and it shall not establish any other category of telecommunication network which may require a separate authorisation from the Central Government.

(4) Scope of Satellite Earth Station Gateway (SESG) provider authorisation

1. The provisions of this Part D shall apply to authorised entities holding Satellite Earth Station Gateway (SESG) provider authorisation.

2. The scope of SESG provider authorisation comprises of establishing, operating, maintaining, or expanding SESG for such satellite systems which are authorised by the Department of Space or IN-SPACe, or any other office so authorised by the Central Government for this purpose.

3. An authorised entity holding SESG provider authorisation may establish, operate, maintain, or expand the baseband systems, along with SESG, for such satellite systems as specified in sub-rule (2).

4. An authorised entity holding a Satellite Earth Station Gateway (SESG) provider authorisation, shall only establish the telecommunication network as authorised under the scope of its authorisation, and it shall not establish any other category of telecommunication network which may require a separate authorisation from the Central Government.

(5) Scope of Cloud-hosted Telecommunication Network (CTN) provider authorisation

1. The provisions of this Part E shall apply to authorised entities holding Cloud-hosted Telecommunication Network (CTN) provider authorisation.

2. For the purpose of Part E of Chapter 6, the following terms shall have the meaning as set out below:
   (a) "cloud-hosted telecommunication network" or "CTN" means telecommunication network comprising of virtual network components, topologies, and configurations that run on the CTN provider's physical networking infrastructure;
   (b) "CTN provider" means a person holding an authorisation to provide CTN;
   (c) 'CTNaaS' shall cover the following:
      (i) provision of physical infrastructure to any other entity authorised under sub-section (1) of section 3 of the Act for housing its telecommunication equipment;
      (ii) provision of dedicated telecommunication equipment to any other entity authorised under sub- section (1) of section 3 of the Act for use in its telecommunication network;
      (iii) provision of virtual machine(s) to any other entity authorised under sub-section (1) of section 3 of the Act for use in its

telecommunication network; or

(iv) provision of telecommunication network functionality to any entity authorised under sub- section (1) of section 3 of the Act for providing telecommunication services.

3. The scope of CTN provider authorisation comprises of following:

(a) establishing, operating, maintaining, or expanding CTN,

(b) provide CTN as a Service (CTNaaS) to the entities authorised to use such telecommunication network for provisioning of telecommunication services or establishing telecommunication network.

4. A CTN provider shall only establish the telecommunication network as authorised under the scope of its authorisation, and it shall not establish any other category of telecommunication network or provide any category of telecommunication service which may require a separate authorisation from the Central Government.

(6) Scope of Mobile Number Portability (MNP) provider authorisation

1. The provisions of this Part F shall apply to authorised entities holding Mobile Number Portability (MNP) provider authorisation.

2. The scope of MNP provider authorisation comprises of the authorisation to establish, operate, maintain, or expand a telecommunication network for providing MNP as a Service in its zonal area to the entities authorised to provide access service under clause (a) of sub-section (1) of section 3 of the Act.

3. An authorised entity holding a Mobile Number Portability (MNP) provider authorisation, shall only establish the telecommunication network as authorised under the scope of its authorisation, and it shall not establish any other category of telecommunication network which may require a separate authorisation from the Central Government.

Annexure 2.2: DoT's OM dated 05.05.2025

Government of India
Ministry of Communications
Department of Telecommunications
(Satellite Division)
20, Ashoka Road, New Delhi – 110001

File No. 60-1/IMC/GMPCS/2024-SAT **Dated 05/05/2025**

Office Memorandum

To,

All Unified Licensees with GMPCS service authorisation

Subject: Instructions related to Security aspects in Chapter XII of the UL Agreement for the provision of GMPCS service

As per condition 39 of Chapter-VI of the Unified License (UL) Agreement, the Licensor reserves the right to issue instructions/directions from time to time in the interest of national security. In pursuance of this condition, the following additional security instructions, other than the existing security conditions included in Chapter XII of the UL Agreement for the provision of GMPCS service, are hereby issued:

1. The Licensee shall require security clearance for specific gateway/ hub locations in India and compliance to monitoring/ interception facilities/ equipment requirements. The Monitoring and Lawful Interception shall be provided as per the licensing condition(s) at the Gateway/Point of Presence (PoP)/Network Control and Monitoring Center (NCMC) /any equivalent facility. The LIS/LIM system shall be integrated with Centralised Monitoring System (CMS)/ Integrated Monitoring System (IMS). The Licensee shall demonstrate the system capabilities with respect to security aspects including monitoring to the Licensor or its authorized representative prior to starting of operations in India.

2. Essential functionalities like Lawful Interception facility, monitoring/ control facility of user terminals, user data traffic routing, control of equipment in Gateway routing data traffic etc., of the Network Control and Monitoring Centre (or equivalent facility) shall be located in India.

3. The licensee shall be able to implement service restriction/ denial to any individual, group of subscribers or certain geographical areas during hostilities or otherwise as informed by the Designated LEAs/ Security Agencies /Licensor. Further, the licensees shall ensure the accuracy of geo-fencing in case of debarred areas and also reshape footprint pattern near borders areas to avoid spillovers.

4. Licensee to provide services, as per survey of India maps and in border/sensitive areas, with selective provision/ denial facility thereto to provide services on best effort basis to only authorized UTs/whitelisted UTs as informed by Designated LEAs/ Security Agencies/Licensor.

5. Special Monitoring Zones (50 kms within International Border) along the territorial borders and along coastal borders covering EEZ (200 Nautical Miles) shall be demarcated for monitoring of user activities by Designated LEAs/ Security Agencies.

6. Following additional details may also be included in CDR/IPDR details:
   a) User Terminal location along with exact Latitude/Longitude
   b) Device ID, IMEI, MSISDN.
   c) Public IP address allotted to a particular session as well as private IP address.
   d) For the directly connected end user devices with the licensee's UT, all requisite details like IP address, MAC address or any other unique identifier, shall be provided in the IPDR along with the IP address allocated to the UT. For subsequently connected end user devices to such devices, the licensee may provide the details on best effort basis.

   However, the location of its user terminals or any other sensitive information pertaining to the user (SDR/CDR/IPDR etc.) shall not be visible or accessible at any location abroad.

7. The licensee shall ensure that websites blocked in India are also blocked through GMPCS services.

8. The licensee shall facilitate meta-data collection by Telecom Security Operation Centre (TSOC) under DoT.

9. The sharing of user terminals' information (i.e. name, address etc., as per Condition No. 39.17 in the Part-I of the UL) with unique IDs with Designated LEAs/ Security Agencies shall be at specified periodicity, as and when required. Further, the Licensee shall share the aforesaid details of the relocated/shifted user terminals quarterly with the Licensor and Designated LEAs/ Security Agencies.

10. No User Terminal (UT) shall be able to access the network from outside the geo-fenced coverage area and/or through gateway situated outside India. UTs registered in India are not allowed to latch on to any other gateway located out of Indian Territory.

11. The Fixed Satellite Subscriber/User Terminals (which have not subscribed to any portability/mobility facility) shall suitably be bound to geo location where subscribed services are granted by the licensee. Any attempt at the subscriber level for relocation and transportation of the terminal to other locations should not be allowed. Requests for relocation or shifting be addressed to licensee and should only be granted with proper authorization.

    Further, the Licensee shall keep adequate provision to immediately block any user terminal identified as rogue for its malicious activities by agencies. In addition, the network shall have facilities available at its Gateway/PoP /NCMC/Equivalent facility for real time monitoring of frequency allotted to each

user terminal/Gateway link and they are able to stop transmission of frequencies which are causing interference.

12. **Registration, Authentication and Tracking of User Terminals:** All user terminals operating within Indian Territory shall be registered in India and regular verification through authentication mechanism should be included in the design. Unregistered devices or any foreign device shall only be allowed to use services within Geo-fenced area of Indian Territory after due authentication and registration process. Further, real time information of such foreign /unregistered UTs hooking on to the network from within Indian Territory shall be provided to Designated LEAs/ Security Agencies. Also, the service providers shall provide real time location data/tracking of user terminals (Fixed and Mobile) anywhere within Indian Territory as and when required by Designated LEAs/Security Agencies. This includes sharing of Latitude-Longitude details of user terminals as and when required on real time basis.

13. The Licensee shall also ensure that no location spoofing device (hardware or software) be incorporated with these user terminals to hide actual location of the UTs.

14. The Licensee may ensure provisioning of NavIC based positioning system in their User Terminals on best effort basis, along with a transition plan to implement NavIC in a time-bound manner by 2029.

15. In case the Licensee requires remote access from outside the country (Indian territory) for operation of Gateways/PoPs, the Licensee shall ensure that provisioning of remote access from abroad complies with extant rules and adhere to technical compliance to Remote Access guideline issued by Licensor, as modified from time to time.

16. The Licensee shall submit an undertaking that it shall not copy and decrypt the Indian Telecom data outside India.

17. The licensee shall provide real time monitoring to ensure that no user traffic originating from, or destined for India is being routed through any gateway/ PoPs outside Indian Territory.

18. The Indian user traffic shall not be routed through any Gateway/PoP located abroad or any space system, which is not part of satellite/constellation used for providing service.

19. The licensees shall clarify on Inter Satellite Communication Links (ISCL) capability and ensure that no routing of traffic via outside gateways takes place through ISCL during Indian gateway' failure or as part of optimization. Further, the Indian user traffic shall not be mirrored to any system/server located abroad through Inter Satellite Communication Link (ISCL) or through any other means.

20. The licensees shall take prior approval in case of any change in network architecture including number of satellites, orbits or any other configuration related to ground and space segments.

21. The Licensee shall share/furnish following additional information, as and when required by licensor:
a) The list of security standards being complied for the network(s).
b) The details about nature of payloads on satellites proposed to be used (i.e. communication, imaging, resource mapping etc.). The Licensee shall submit a confirmation that no surveillance activity can be carried out with the satellite constellation.
c) The Licensee shall furnish an undertaking to ensure interference free operation of its constellation with existing GSO satellites of Department of Space (DoS).
d) Interference mitigation techniques to resolve both present and future interference between existing/planned satellites (including strategic satellites) services and the existing/proposed satellite constellation of the Licensee.
e) Co-existence and coordination studies to ensure that there is no interference to various networks due to the proposed service.
f) List of equipment being used/planned to be used in the network. Link budget calculation of its existing /future satellite constellation (in totality) for necessary analysis from security and interference angles.

22. The Licensee shall coordinate with Department of Space, Government of India with respect to non-interference with GSO satellites including strategic satellites and strictly follow Article 22 of ITU Radio Regulation (RR) regarding power flux density limits. Further, mitigation/ resolution methodology needs to be pre-defined in case of any conflicts arising with existing and planned satellite operations of DoS. Further, it shall be ensured that no interference to operation of any communication system in space/land/sea and shall immediately shut off its transmission in that frequency range which causes interference, if found out later.

23. The user traffic shall not by-pass the Indian Gateway and shall be routed through them, and in no case, direct communication between user terminals through one or more satellite(s) shall be permitted.

24. The licensee shall ensure that the Data Centre/POP (exclusively/ non-exclusively provisioned for Satellite service) is based within Geographical boundary of India and shall make provision to provide Domain Name System (DNS) resolution within the geographical boundary of India.

25. The licensee shall seek separate clearance (from security angle) for Voice service and Data service.

26. The licensee shall seek separate clearance (from security angle) for fixed location service (no mobility/ limited mobility) and mobility (full) based service.

27. The licensee, in the format prescribed, will submit to the licensor a year-wise phased manufacturing program aiming at indigenisation to a level of at least

20% of their ground segment of the satellite network that is established at the end of 5 years post the date of launch of commercial operations.

28. The licensee shall comply with clauses 5.4, 8.1-8.3 of the TEC IR 42032:2024 for NGSO satellite networks.

29. Security instructions specific to Land-Mobility Terminals

29.1 Land mobility terminals shall report location every 2.6 km moved or 1-minute duration, whichever is less, as claimed by the Licensee. Licensee may be asked to demonstrate the capability for real time location tracking of user terminals as per the existing licensing terms and conditions.

29.2 The network should have ability to stop service when user terminal moves from authorized area to barred area (while in idle mode and while ongoing data transfer/voice call).

29.3 The licensee shall comply with clause 8.4 [Additional Mandatory Requirements applicable to Earth Stations in Motion (ESIM) and Transportable Earth Stations (TES)] of the TEC IR 42032:2024 for NGSO satellite networks, and the same shall be demonstrated prior to starting of operations in India.

In case of conflict between UL conditions and the conditions in this O.M., the latter shall prevail. These conditions are liable to change depending on the national security requirements.

5/5/2025

(Arun Agarwal)
Dy. Director General (Satellite)

Copy to:

- DG(T), DoT
- Sr. DDG (TEC)/ Wireless Advisor
- DDG (LFP)/ DDG (WPF)/ DDG (SA)/ DDG (SPPI)/DDG(AI&DIU), DoT.
- DDG (CS)/ DDG (DS)/ DDG (AS)/DDG(SMC)/DDG(LP), DoT.
- Director (IT) may kindly arrange to upload this letter on the website of DoT.

Annexure 3.1: Definitions of GR/ ApGR/ AGR

[As per "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" dated 05.09.2025, as per Recommendations dated 18.09.2024 for Satellite-based Telecommunication Service authorisation and provisions of extant GMPCS & Commercial VSAT CUG Authorisations]

A. GR/ ApGR/ AGR for Global Mobile Personal Communication by Satellite (GMPCS) Service authorisation under UL

Gross Revenue:

The Gross Revenue shall be inclusive of installation charges, late fees, sale proceeds of handsets (or any other terminal equipment etc.), revenue on account of interest, dividend, value added services, supplementary services, access or interconnection charges, roaming charges, revenue from permissible sharing of infrastructure and any other miscellaneous revenue, without any set-off for related item of expense, etc.

Applicable Gross Revenue (ApGR):

ApGR shall be equal to Gross Revenue (GR) of the licensee as reduced by the items listed below:

(i) Revenue from operations other than telecom activities/ operations.
(ii) Revenue from activities under a license/ permission issued by Ministry of Information and Broadcasting.
(iii) Receipts from the USO Fund.
(iv) List of other income to be excluded from GR to arrive at ApGR
    a. Income from Dividend

b. Income from Interest

c. Capital Gains on account of profit of Sale of fixed assets and securities

d. Gains from Foreign Exchange rates fluctuations

e. Income from property rent

f. Insurance claims

g. Bad Debts recovered

h. Excess Provisions written back

Adjusted Gross Revenue (AGR):

For the purpose of arriving at the Adjusted Gross Revenue (AGR), following shall be excluded from the Applicable Gross Revenue (ApGR):

a. PSTN/PLMN/GMPCS related call charges (Access Charges) paid to other eligible/ entitled telecommunication service providers within India;
b. Roaming revenues passed on to other telecom service providers, and;
c. Goods and Service Tax (GST) paid to the Government, if the Applicable Gross Revenue (ApGR) had included as component of GST

B. GR/ApGR/AGR for Commercial VSAT CUG Service authorisation under UL

Gross Revenue:

The Gross Revenue shall include all revenues accruing to the Licensee on account of goods supplied, services provided, leasing/hiring of infrastructure, use of its resources by others, application fees, installation charges, call charges, late fees, sale proceeds of instruments (or any terminal equipment including accessories), VSAT hardware/software, fees on account of Annual Maintenance Contract/ Annual Comprehensive Maintenance Contract, income from value added services,

supplementary services, access or interconnection charges, etc., and any other miscellaneous item including interest, dividend etc. without any set-off of related item of expense, etc.

Applicable Gross Revenue (ApGR):

[Same as GMPCS service authorisation]

Adjusted Gross Revenue (AGR):

For the purpose of arriving at the Adjusted Gross Revenue (AGR), following shall be excluded from the Applicable Gross Revenue (ApGR):

a. Charges of pass through nature paid to other Telecom service provider(s) to whose network, the Licensee's network is interconnected for carriage of data, and;
b. Goods and Service Tax (GST) paid to the Government, if the Applicable Gross Revenue (ApGR) had included as component of GST

C. GR/ApGR/AGR for proposed Satellite-based Telecommunication Service authorisation-NSO as per Recommendations dated 18.09.2024 under Chapter XI of Annexure-2.3 of the said Recommendations:

"*(1) Gross Revenue: The Gross Revenue shall include all revenues accruing to the Authorised Entity on account of goods supplied, services provided, leasing/hiring of infrastructure, revenue from permissible sharing of infrastructure, use of its resources by others, installation charges, application fee, call charges, late fees, sale proceeds of instruments (or any terminal equipment including accessories), hardware/software for satellite-based telecommunication, fees on account of Annual Maintenance Contract, income from value added services, access or interconnection charges and any other*

miscellaneous item including interest, dividend, supplementary services etc. without any set-off of related item of expense.

(2) Applicable Gross Revenue: ApGR shall be equal to Gross Revenue (GR) of the Authorised Entity as reduced by the items listed below: (a) Revenue from operations other than telecom activities/ operations. (b) Revenue from activities under a license/ permission issued by Ministry of Information and Broadcasting. (c) Receipts from the Digital Bharat Nidhi. (d) List of other income to be excluded from GR to arrive at ApGR (i) Income from Dividend (ii) Income from Interest (iii) Capital Gains on account of profit of Sale of fixed assets and securities (iv) Gains from Foreign Exchange rates fluctuations (v) Income from property rent (vi) Insurance claims (vii) Bad Debts recovered (viii) Excess Provisions written back *Subject to conditions given in Annexure-1.3.4*

(3) Adjusted Gross Revenue: For the purpose of arriving at the "Adjusted Gross Revenue (AGR)", following shall be excluded from the Applicable Gross Revenue (ApGR):

(a) PSTN/PLMN/ GMPCS related call charges (Access Charges) paid to other eligible/entitled telecommunication service providers within India;

(b) Charges of pass through nature paid to other Telecom service provider(s) to whose network, the Authorised Entity's network is interconnected for carriage of data, and;

(c) Roaming revenues passed on to other telecom service provider

Back Reference dated 14.01.2025 received from DoT on the Recommendations dated 18.09.2024 & Response of TRAI to the same is reproduced below:

"Recommendation on 4.51

4.50 The Authority recommends the following:

(a) The extant definitions of Gross Revenue (GR), Applicable Gross Revenue

(ApGR) and Adjusted Gross Revenue (AGR) for the existing Service Authorisations should continue.

(b) In case of merged/ clubbed / new Service Authorisations, the definitions should be aligned accordingly.

(c) The applicable definitions for GR, AGR and ApGR have been given under the respective Service Authorisations.

(d) The clarification dated 17.07.2023 issued by DoT regarding the definitions of GR and AGR should be considered alongwith the applicable definitions for GR, AGR and ApGR as have been given under the respective Service Authorisations.

(e) Any further orders/instructions/clarifications on the definitions of Gross Revenue, Applicable Gross Revenue and Adjusted Gross Revenue may be issued by DoT after obtaining recommendations from TRAI.

[Para 3.152]

DoT's Views on Recommendation on 4.51

*(a-d) May not be accepted. May have uniform definition of GR, ApGR and AGR, which would be common to all authorisations. (attached as **Annexure-C**)*

(e) May not be accepted

Response of TRAI w.r.t. the DoT's Views on the Recommendation on 4.51

DoT in its back reference to TRAI dated January 14, 2025, has inter alia stated that:

"Like the extant licensing framework, TRAI has recommended separate definitions for each authorisation of Gross Revenue (GR), Applicable Gross Revenue (ApGR) and Adjusted Gross Revenue (AGR). These definitions are similar in principle across all authorisations with minor differences in drafting. The Government is of the view that the definitions of Gross Revenue (GR),

Applicable Gross Revenue (APGR) and Adjusted Gross Revenue (AGR) may be redrafted in a manner to make them uniform and common to all such authorisations where Authorisation Fee is calculated as a share of AGR. This would simplify and bring more transparency in the authorisation framework and eliminate possibility of arbitrage, if any. The extant levies ie. License Fee and Spectrum Usage Charges (SUC) would continue to be charged at existing rates. The draft common definitions of GR, APGR and AGR are available at Annexure-C."

The Authority notes that DoT while proposing common definition/ format for GR/AGR has not provided any detailed justification or analysis citing the necessity of this uniform definitions/ formats.

Further, in this regard, it is pertinent to highlight that the current GR/AGR definitions and formats have been consistently followed by service providers in preparation of the Statement of Revenue.

TRAI in its Recommendations dated 18.9.2024 marked a significant shift from a licensing regime to an authorisation-specific framework. Consequently, to enhance clarity in the reporting of revenue by service providers, the Authority recommended distinct and comprehensive definitions tailored for each service authorisation rather than a uniform definition applicable to all authorisations. This approach aligns with the specific revenue items required to be disclosed in the Statement of Revenue, ensuring greater transparency and adherence to prevailing market practices.

Furthermore, in the 'Consultation Paper on the Framework of Service Authorizations to be granted under the Telecommunication Act, 2023,' issued on July 11, 2024, issues concerning the definitions and formats of the

Statement of Revenue were raised separately for each service authorisation. The issue related to uniform definitions/ formats were neither raised by DoT's reference in this regard nor this was part of the consultation. Moreover, no specific suggestions were received from stakeholders regarding uniformity in GR/AGR definitions and formats.

Further, the formats proposed by DoT in its back reference are primarily bifurcated into wireless or wireline segments i.e. medium used for provision of service rather than service specific/ authorisation specific formats.

The Authority is of the view that the existing service-specific definitions/ formats for GR/AGR are a well-established practice and are being followed by the industry for more than a decade. Any alteration at this stage could lead to ambiguity into the process. Further, the Authority further is of the opinion that retaining the service-specific definitions will ensure clarity, consistency, and the avoidance of ambiguity.

In light of the above, ***the Authority reiterates its earlier recommendations w.r.t. definitions of GR, ApGR, and AGR."***

D. "Draft Telecommunication (Authorisation for Provision of Main Telecommunication Services) Rules, 2025" dated 05.09.2025

"Gross Revenue" of an authorised entity shall include revenues accrued to an authorised entity by way of all operations and activities and all income from any source including on account of interest, dividend, rent, profit on sale of fixed assets and miscellaneous income, without any set-off for related items of expenses.

"Applicable Gross Revenue" or "ApGR" for the purposes of calculating Adjusted Gross Revenue (AGR), shall be equal to Gross Revenue of an authorised entity as reduced by the items listed below:

(i) revenue from operations other than telecom activities or operations;

(ii) revenue from activities under an authorisation, permission or registration issued by Ministry of Information and Broadcasting;

(iii) receipts from the Digital Bharat Nidhi; and

(iv) revenue falling under the following items:

(a) income from dividend;

(b) income from interest;

(c) capital gains on account of profit on sale of fixed assets and securities;

(d) gains from foreign exchange rates fluctuations;

(e) income from property rent;

(f) insurance claims;

(g) bad debts recovered; and

(h) excess provisions written back: Provided that the Central Government shall from time to time specify the description and conditions applicable to these revenue sources and the manner of their computation.

"Adjusted Gross Revenue" or "AGR":

(i) In respect of a NSO, AGR shall be calculated by excluding the following from the ApGR:

(a) interconnection usage charges (IUC), related to calls and SMS, paid to other authorised entities or licensees; and

(b) roaming revenues paid to other authorised entities or licensees within India and telecommunication service providers outside India; and

(ii) In respect of a VNO, AGR shall be calculated by excluding from the ApGR, charges paid by the VNO to one or more NSOs under an agreement for provision of telecommunication network, including bandwidth, leased

circuits, call minutes and SMSs, as may be necessary for a VNO to provide telecommunication services to its users, subject to submission to the Central Government the copy of the agreement, specifying such charges, along with proof(s) of actual payment of such amounts."

LIST OF ACRONYMS

3GPP	3rd Generation Partnership Project
ACMA	Australian Communications and Media Authority
AGR	Adjusted Gross Revenue
ApGR	Applicable Gross Revenue
ASP	Access Service Provider
BG	Bank Guarantee
BSNL	Bharat Sanchar Nigam Limited
BSO	Basic Service Operator
BTS	Base Transceiver Station
CMRTS	Captive Mobile Radio Trunking Service
CMSP	Cellular Mobile Service Provider
CNPN	Captive Non-Public Network
CTFA	Canadian Table of Frequency Allocation
CTN	Cloud-hosted Telecommunication Network
CUG	Closed User Group
D2D	Direct-to-Device
D2M	Direct-to-Mobile
DCIP	Digital Connectivity Infrastructure Provider
DoS	Department of Space
DoT	Department of Telecommunications
DTH	Direct-To-Home

EIR	Equipment Identity Register
FCC	Federal Communications Commission
FBG	Financial Bank Guarantee
FDD	Frequency Division Duplexing
FSP	Fixed Service Provider
FSS	Fixed Satellite Service
GIA	Geographically Independent Area
GMPCS	Global Mobile Personal Communication by Satellite
GR	Gross Revenue
GSPS	Global Satellite Phone Service
GSO	Geostationary Orbit
GST	Goods and Services Tax
IF	Intermediate Frequency
IFC	In-Flight Connectivity
IFMC	In-Flight and Maritime Connectivity
ILD	International Long Distance
ILDO	International Long Distance Operator
IMT	International Mobile Telecommunications
INCOSPAR	Indian National Committee for Space Research
INSAT	Indian National Satellite
IN-SPACe	Indian National Space Promotion and Authorisation Centre
IoT	Internet of Things
IP	Infrastructure Provider

ISED	Innovation, Science and Economic Development
ISRO	Indian Space Research Organisation
ITU	International Telecommunication Union
ITU-RR	ITU Radio Regulations
IUC	Interconnection Usage Charges
IXP	Internet Exchange Point
LEO	Low Earth Orbit
LSA	Licensed Service Area
M2M	Machine to Machine
MBIE	Ministry of Business, Innovation and Employment
MCA	Mobile Communication on Aircraft
MEO	Medium Earth Orbit
MNO	Mobile Network Operator
MNP	Mobile Number Portability
MSS	Mobile Satellite Service
NDCP	National Digital Communication Policy
NFAP	National Frequency Allocation Plan
NGE	Non-Government Entity
NGSO	Non-Geostationary Orbit
NLD	National Long Distance
NLDO	National Long Distance Operator
NOCC	Network Operations Control Center
NSO	Network Service Operator

NTN	Non-Terrestrial Network
NTP	National Telecom Policy
OM	Office Memorandum
PBG	Performance Bank Guarantee
PLMN	Public Land Mobile Network
PMRTS	Public Mobile Radio Trunking Service
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RIO	Reference Interconnect Offer
SCN	Satellite Communication Network
SCNaaS	Satellite Communication Network as a Service
SCS	Supplemental Coverage from Space
SDL	Supplementary Downlink
SESG	Satellite Earth Station Gateway
SMCS	Supplemental Mobile Coverage by Satellite
SMP	Significant Market Power
TDD	Time Division Duplexing
TRAI	Telecom Regulatory Authority of India
TSTP	Test Schedule Test Procedure
UAL	Universal Access Levy
UL	Unified License
UK	United Kingdom
USA	United States of America

USO	Universal Service Obligation
USOF	Universal Service Obligation Fund
VNO	Virtual Network Operator
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WPC	Wireless Planning & Coordination Wing
WPF	Wireless Planning & Finance Wing
WRC	World Radiocommunication Conference