Number IAFI/12/2021/TRAI **16th December 2021**

IAFI Response to the Telecom Regulatory Authority of India (TRAI) Consultation Paper on Licensing Framework for Establishing Satellite Earth Station Gateway

TRAI's Consultation paper dated 15th November

We, the ITU-APT Foundation of India (IAFI), are a registered non-profit and non-political industry association registered under the Cooperative Societies Act of India. IAFI has been recognised by the International Telecommunication Union (ITU), the UN Organisation for ICT issues, as an international/ regional Telecommunications organisation and has been granted the sector Membership of the ITU Development Bureau (ITU-D) and ITU Telecommunication Standardization Bureau (ITU-T). IAFI has been working for the last 18 years to encourage the involvement of professionals, corporate, public/private sector industries, R&D organisations, academic institutions, and other agencies in the activities of the ITU. Our members also include many Indian and global satellite entities (https://www.itu-apt.org/).

We would like to highlight the **announcement made by the Hon'ble Finance Minister of India on 16th May 2020 regarding boosting private participation in Space sector activities**.

The announcement states that:

> *"There shall be a level playing field provided to private companies in satellites, launches and space-based services. A predictable policy and regulatory environment for private players will be provided. The private sector will be allowed to use ISRO facilities and other relevant assets to improve their capacities. Future projects for planetary exploration, outer space travel etc., shall also be open for the private sector. There will be liberal geospatial data policy for providing remote-sensing data to tech-entrepreneurs."*

In Furtherance of the same, we would also like to bring to your attention various provisions regarding "**Strengthening Satellite Communication Technologies in India**", under Connect India mission of **National Digital Communications Policy (NDCP)-2018 gazette, notified by the DoT, Government of India in Oct'2018:**

- **Review the regulatory regime for satellite communication technologies** – This includes expanding the scope of permissible services for the effective utilization of High

Throughput Satellite systems and simplifying compliance requirements for faster rollouts

- **Optimize Satellite communications technologies**- Which includes new Spectrum bands, Rationalization of charges & Reviewing SATCOM policy for communication services, along with the 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

- **Develop an ecosystem for satellite communications in India**– Streamlining the administrative process for various clearance & permissions, Promoting local manufacturing, Infrastructure development and participation of private players, with due regard to national security and sovereignty

Given these provisions under the NDCP-2018 and following the FM's announcement in May'2020 which aims at structural reforms by policy simplification, private participation, transparency, & ease of doing business, **IAFI has been working with various Industry stakeholders and satellite experts of the country and around the world.** Towards this end, **we also hosted a virtual industry dialogue on this subject on 10th September 2020, addressed by Dr K Sivan, Chairman of ISRO, and Dr R S Sharma, IAS, the then Chairman of TRAI** among others dignitaries and Space sector experts.

IAFI will also like to draw the attention of the Authority towards launch of the Trusted Telecom Portal (www.trustedtelecom.gov.in) on 15th June 2021 signalling the coming into effect of the National Security Directive on Telecommunication Sector (NSDTS). The 'Trusted Telecom Portal' is for implementation of the National Security Directive on Telecommunication services -

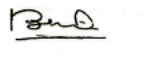
"The Government launched the Trusted Telecom Portal www.trustedtelecom.gov.in on 15th June 2021 signalling the coming into effect of the National Security Directive on Telecommunication Sector (NSDTS). Consequently, with effect from 15th June 2021 the Telecom Service Providers (TSPs) are mandatorily required to connect in their networks only those new devices which are designated as 'Trusted Products' from 'Trusted Sources'. Necessary amendment had been made by the Government in this regard to the license conditions for the provision of telecommunication services by the service providers."

Trusted Products are products whose critical components and the products themselves are sourced from Trusted Sources. An assessment is made of the vendors and the sources of the components to determine Trusted Sources and Trusted products which are then intimated to the vendor concerned and the applicant service providers to make their procurements.

Based on these and other interactions, we have provided our responses to various issues raised by the TRAI consultation are given in attachment 1.

In addition, it is also critical that necessary security and national sovereignty considerations be keep in view by the Government while issuing the relevant service licenses or authorizations to the operators.

Warm Regards,



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IAFI Responses to the issues raised in Telecom Regulatory Authority of India (TRAI) Consultation Paper on Licensing Framework for Establishing Satellite Earth Station Gateway

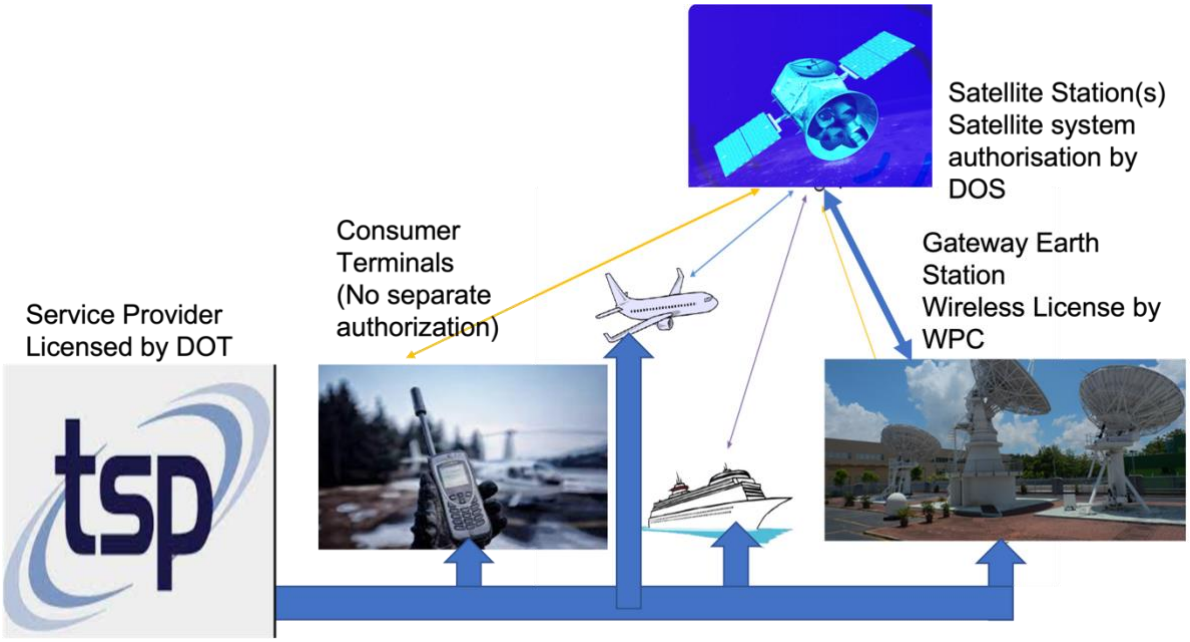
Issue 1) - Whether there is a need to have a specific license for establishing Satellite Earth Station Gateway in India for the purpose of providing satellite-based resources to service licensees? Do justify your answer.

Answer: -

Yes, there is a need to obtain a Specific license to establish a Satellite Earth Station Gateway.

Under the Indian Telegraph Act 1885, it is necessary to obtain a wireless operating license in order to establish, maintain or operate any Telegraph, which includes any wireless station. WPC wing of the DOT normally grants a wireless operating license for satellite earth stations

In addition, for providing any telecom services to the customers in India, a Unified License is required from the DOT under the Indian Telegraph Act. The Unified License permits the service licensee to establish the infrastructure, operate the network, and provide the access services to the customers.



Under the current policy, there are three separate licenses/authorisations needed for the provision of satellite based telecom services by private operators in India, as shown in the figure above. These include:

1. Authorisation from DOS/WPC for the satellite system. This will include ensuring that the satellite system is duly registered with ITU and coordinated with the Indian administration (WPC). This authorisation will also ensure that the satellite system meets the provisions of ITU Radio Regulations and related radio recommendations as well as any bilateral or multilateral agreements signed by India, as appropriate.
2. Wireless Operating license issued by the WPC wing of the DOT for the gateway earth station indicating necessary frequencies for uplink and downlink and related emission parameters.
3. Unified Access License (UL) issued by the DOT for providing necessary services to the customers. This licensee will be responsible for selling the service and managing the customer services through the gateway earth station. The Unified License permits the service licensee to establish the infrastructure, operate the network, and provide the service. This license also covers all the user terminals. The licensee will also be responsible for providing necessary facilities for lawful interception of the calls/messages through the gateway earth station.

Many administrations separate the Earth Station operation and the service provisioning. Most of the administrations have a separate Earth Station license. Spectrum gets assigned for the Earth Station operation based on an individual authorisation/license. As these gateway earth stations are deployed by the satellite system operators or their authorised proxy entities based on design or regulatory requirements to achieve the desired performance, for network interconnection purposes or mandated by existing regulations, there is no need to link their licenses to the regulatory authorizations for the provision of the services. In countries such as the EU, UK, Australia and USA have all established a separate Earth Station License.

Therefore, it is imperative that the Satellite Operators after obtaining space assets authorisation, obtain a Wireless Operating license for the satellite Earth Station Gateway in India for managing the services provided to the customers by the service providers in India.

The technological advancement and complexity of the systems have made it necessary for the satellite operators to establish their own satellite Earth Station & provide the Satellite-based resources to the service licensee from their Earth Station. The integration of satellites and their associated Earth Station is gradually becoming a norm for next-generation satellite systema.

Issue 2- If yes, what kind of license/permission should be envisaged for establishing Satellite Earth Station Gateway in India? Do provide details with respect to the scope of the license and technical, operational, and financial obligations, including license fee, entry fee, bank guarantees, and NOCC charges, etc.

Answer- As per the current licensing regime in India, establishing Satellite Earth Station is linked with the service license, and there are no specific licenses/provisions for establishing

Earth Station by the satellite operators for providing satellite-based resources to the service licensee. Therefore, the need has arisen to have a specific authorisation for establishing the satellite Earth Station gateway by a satellite operator or any entity having a tie-up with the satellite operator. The license permission should come with an application-based framework for the same.

Wireless Planning & Coordination (WPC) Wing of Department of Telecommunications, has an existing process for issue of an operating license to earth stations. (Refer page 17 of the CP). The same should be continued for licensing of new gateway Earth stations. However, a detailed comprehensive framework for the entire the process to be followed for provision of satellite based services with well-defined process and timelines, etc will be very useful. Such a detailed framework will bring transparency and help bring accountability. Free and fair competition is the key to driving the prices down.

It may be recalled that before the entry of private players in mobile telephony service in India, the cost of such services was exorbitant. With the opening of the sector, the prices of mobile services for consumers have become affordable. The same can be said for the airline Industry also. Hence, a similar open and fair competition in the satcom services sector will also be very useful

For operation of a gateway earth station, following broad parameters are proposed:

- **Scope of license** - to establish, own and operate the Gateway earth station
- **Technical operations** – The Earth station shall operate as per technical parameters of the space constellation and fully comply with all ITU radio regulations and relevant Recommendations of ITU-R.
- **Financial Obligations** - Earth station should be charged a nominal fee and a bank guarantee to ensure that it meets its obligations
- **License Fee** - The TRAI & DoT in the recent past have set the license fees for the Flight and Maritime connectivity authorization to be Rs. 1. The rationale was that the service provider who is providing the bandwidth to the FMC authorization holder is already paying the license fees. The license fees should not be double charged for a given bandwidth/service. Similarly, here the license fees are already being paid by the service licensee as a percentage of AGR. So there is no need to charge a separate license fee.
- **Entry Fee** - there should be no entry fees
- **NOCC Charges**- In the case of GSO/NGSO HTS, monitoring can be done only where there is spectrum visibility (only in the beams where a specific spectrum is configured). NOCC is not going to be able to set up infrastructure across all beams of all satellites to do the monitoring. Even today foreign satellites are not being monitored by NOCC. Internationally there is no agency that is similar to NOCC for monitoring carriers of a given satellite. Wireless Monitoring Organization under WPC already does this monitoring and is a duplicated effort. So NOCC monitoring should be done away with and should not be charged.
- IAFI also proposes that service providers under UL should be provided access to log into the Trusted Telecom Portal and where it must indicate the telecom products and the vendors from whom they intend to procure their products. The details of these

vendors, the products, their critical components and their sources are then populated into the portal by the TSPs and respective vendors who will also be provided access to the portal An assessment is made of the vendors and the sources of the components to determine Trusted Sources and Trusted products which are then intimated to the vendor concerned and the applicant TSPs to make their procurements.

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Issue 3- Whether such Earth Station license should be made available to the satellite operator or its subsidiary or any entity having a tie-up with the satellite operator?

Answer: - Yes, Earth Station License should be made available to the satellite operator and its subsidiary(or any Indian registered company that holds an agreement the satellite operators such as a teleport operator or a service provider). This is because all technologies should be allowed to prosper and compete, or it would create a sense of monopoly, which is unfair to the end users. The availability of a license to the Satellite operators and their subsidiaries or partners helps in fostering competition and provides choices to end users on the service provider to subscribe to their service offerings and cost. . Any regulatory restrictions on the choice of technology may impede the adoption of the appropriate technology that could be key for the nation. Furthermore, this will also allow an optimised use of ground infrastructure.

Issue 4 - What mechanism/framework should be put in place to regulate the access to satellite transponder capacity and satellite-based resources of a Satellite operator/Earth Station licensee by the service licensees so as to get the resources in a time-bound, transparent, fair and non-discriminatory manner?

Answer- Agreement between the satellite transponder provider/ Satellite operator and the Earth Station licensee should be governed by a commercial agreement between the two entities. Only regulation should be to ensure that the technical and regulatory conditions of the license are complied with by both the entities. Also, satellite operators should negotiate and establish commercial agreements directly with service providers for a fair, competitive and non-discriminatory allocation of resources. Gateway earth station operator should provide the necessary proof of agreement with the satellite operator and their authorization and all related agreements to provide service in India. Any conditions agreed on a bilateral basis with India during the ITU coordination process of the satellite system should be abided by the gateway earth station licensee, and these should be included in the gateway license.

Issue 5- Whether the Earth Station Licensee should be permitted to install baseband equipment also for providing satellite bandwidth to the service licensees as per need? Provide a detailed response

Answer- Yes, the earth station licensee should be permitted to install baseband equipment, so that satellite capacity can be provided in ‘MHz’ or ‘Mbps’ depending on the business model and the agreement between the service licensees and earth station licensees. In some instances the satellite gateway provider or its authorised entity could also be the service provider. In such a case, they need to take the appropriate service license/authorization.

Issue 6- What amendments will be required to be made in the existing terms and conditions of the relevant service authorizations of Unified License, DTH License/Teleport permission to enable the service licensee to connect to the Satellite Earth Station Gateway established by Earth Station Licensee/Service Licensee, for obtaining and using the satellite transponder bandwidth and satellite-based resources? Do justify your answer.

Answer-

Recently the Unified License has been amended to allow service licensees to use hubs that are authorized for installation/operation by satellite operators. This authorization for gateway installation/operation by satellite operators should be generalized, also to include independent gateway operators who would have an arrangement with the satellite operator. Similarly, the license should be amended for sharing of gateway infrastructure among licensees.

Furthermore, rather than only publishing the amendments to the specific sections of the license, this could be the chance for the overall Unified License to be re-published in totality as a single document to reflect all amendments and revisions made in the last few years.

Issue 7- Whether the sharing of Earth Station among the licensees (between proposed Earth Station licensee and Service Licensee; and among service licensees) should be permitted? Do provide the details with justification.

Answer- Yes, Earth Stations should indeed be shared among licensees (between earth station licensee and service licensee; and among service licensees) to allow flexibility in the commercial arrangements and eliminate the need for redundant ground infrastructure.

Issue 8- To whom should the frequency carriers be assigned: the Earth Station Licensee, or the Service Licensee, or whoever establishes the Satellite Earth Station? Do justify your answer.

Answer-Earth Station operation and the service provision are usually covered by separate licenses. Spectrum gets assigned administratively to the Earth Station licensee for the Earth Station operation based on an individual license for the gateway. Therefore, the Earth Station licensee and the service licensee should be authorised separately too for the use of their required spectrum.

It is essential to emphasise, that there is no need for exclusive spectrum assignment (as gateway earth stations from different satellite operators can share the same frequency band among themselves and coordinate with terrestrial systems).

Issue 9- What should be the methodology for the assignment of spectrum for establishing satellite Earth Station? Provide a detailed justification.

Answer-

Satellites continue to play an important role for the national communications infrastructure, providing nationwide coverage to complement and extend dense terrestrial networks, competitive broadband connectivity directly to households and communities, completing

connectivity for mobile nodes (ships, aero planes and trains), emergency/disaster communications, backhauling, unicasting or multicasting, broadcasting to homes nationwide etc. **The satellite sector's demand and growth are** pretty evident with India's own Space and Satellite industry that has added enormous value to national development & operations. **Uniqueness and significant benefits of satellite technology in broadcasting, fixed and mobile environment** cannot be underestimated, particularly in the country of 1.3bn with such diverse geographies.

The satellite industry is capable of providing:

- Key mobile backhauling provision to the mobile industry
- Broadband connectivity to homes and businesses, as well as ubiquitous high-throughput connectivity to mobile platforms, such as aeroplanes, vessels, etc
- Critical/governmental services, including the types of societal broadband services to remote areas that the current pandemic has shown to be not simply desirable but indispensable
- Disaster-related communications

Spectrum assignment for satellite services should be based on an administrative process, as spectrum assignment by auction is not suitable for spectrum that can be shared between multiple satellite operators (such as in Ku/ Ka-band).
There are no precedents of spectrum assignment by auction to satellite services in these bands in any country. This would lead to unnecessary spectrum segmentation and, therefore, inefficient spectrum use.
It is an entirely different situation from spectrum assignment to terrestrial mobile operators where spectrum cannot be shared amongst the mobile operators and has to be managed by a single operator.

Gateway spectrum is used only at a fixed location, and as such there is no exclusive usage of the spectrum over a wide area or region by the gateway earth station. Thus the issue of auctions is not relevant.
Furthermore, earth stations can be coordinated individually to coexist with terrestrial services in the same frequency band, making a spectrum auction even more unjustifiable.

Issue 10- What should be the charging mechanism for the spectrum assigned to the satellite Earth Station licensee? Elaborate your answer with justification.

Answer-

The ground gateway infrastructure for an NGSO satellite system consists of a site with multiple antennas tracking different satellites in the location field of view. The additional earth stations do not add to the spectrum usage which is already allocated to the satellite system and the licensed service provider and do not deny other user of the spectrum except in this location, therefore it is proposed a "system" licenses where a gateway is licensed irrespective of number of antennas.

The spectrum for the gateway and the user terminals are assigned to the service licensees and the service licensees pay a percentage of AGR as spectrum charges. The same should continue and the gateway operator should not be charged anything over and above this as this in the current case already covers all the cost for the management of spectrum.

In general, spectrum costs vary from country to country, on, depend on whether it is for gateway earth stations or user terminals. The general trend is, in any case, towards a lowering of spectrum fees for satellite services. As an example, Australia has recently deliberated on a drastic reduction (factor of 10) of spectrum fees. The new fees in Ka-band in Australia are reported below:

Frequency Band (GHz)			17.3 – 31.3							
Reduction in Spectrum Fees (AUD per kHz)			90%							
Spectrum Location	Australia-wide		High density		Med density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
17.3 – 31.3 GHz	0.7350	0.0733	0.1957	0.0195	0.0307	0.0031	0.0033	0.0003	0.000	

As another example, spectrum fees for user terminal operations are generally zero in Europe.

Similarly, New Zealand has also allowed a more straightforward licensing system for satellite services.

Refer to https://www.rsm.govt.nz/licensing/frequencies-for-anyone/satellite-services-gurl.

Issue 11- Give your comments on any related matter that is not covered in this Consultation Paper.

Answer- None