

**Nasscom's Feedback
Telecom Regulatory Authority of India (TRAI) Consultation Paper on Assignment of
Spectrum for Space-based Communication Services**

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Summary

Satellite spectrum unlike terrestrial spectrum can be shared amongst multiple service providers without diminishing what is available to others. Due to its non-exclusive nature, existing well-established administrative route is the most efficient method of allocation.

Further, we believe satellite spectrum should be administratively allocated because auction route can impact India's space sector in the following ways:

- Create artificial limitation of the number of satellite operators sharing spectrum and impact services like broadcasting and broadband.
- Create entry barriers, and limit participation in the Satcom sector to only a few players. Auctions are expensive and for many small players, making such heavy investments in an auction may not be feasible.
- Limiting the entry of players, would also impact competition in the market of space communications.
- Hamper innovation, research & development ecosystem which will have an overall adverse effect on the country's space sector.
- Not aligning with the global practice of administrative allocation of satellite spectrum may discourage foreign investments.
- Costs for end-consumers may increase and thereby limit the availability of services, especially in remote locations.

Introduction

Nasscom welcomes the opportunity to submit our response to the Consultation Paper on “Assignment of Spectrum for Space-based Communication Services” (**Paper**) released by TRAI in April 2023ⁱ.

While TRAI has raised various issues in the paper, we take this opportunity to respond to the fundamental issue in the Paper, i.e., methodology for assignment of satellite spectrum.

Our submission is structured as follows:

- In Part I, we submit that the premise of this paper (based on DoT reference), in equating terrestrial and satellite-based services is incorrect and hence the methodology proposed for assignment of both spectrum as auction is also inappropriate. This is demonstrated by highlighting the differences between satellite and terrestrial networks.
- In Part II, we highlight the international coordination and practices.
- In Part III, we state the legal jurisprudence in India.
- In Part IV, highlight the adverse impact of auction of satellite spectrum in India.
- In Part V, we submit our recommendation.

Part I: Differences between Satellite and Terrestrial Networks

1. Difference in technical characteristics

- Satellite spectrum used for broadcasting services allows multiple satellite service providers to operate in the same geographic area and shared spectrum, so there is no constraint on the availability of satellite spectrum. The positioning of the satellites ensures that there will be no interference at the receiver end. Moreover, satellite spectrum is a shared global resource and non-exclusive in nature. Because of this unique technical characteristic of satellite spectrum, administrative allocation is the best method of allotting this type of spectrum.
- In the case of terrestrial spectrum, each frequency band can be used only by a single operator and cannot be shared because of interference. Different networks in adjacent channels may cause significant inter-network interference, even with a guard band. At any given point of time multiple operators look to exclusive use of spectrum, and this leads to scarcity. Under such circumstances, public interest and efficient utilisation of the resources are best served by auctioning the spectrum.

This fundamental technical difference results in satellite spectrum not being exclusively assigned as opposed to terrestrial spectrum. Nasscom in its response to TRAI on the consultation paper on regulating converged digital technologies and services – enabling convergence of carriage of broadcasting and telecommunication services has already submitted thisⁱⁱ. This has been the prevailing standard for the allocation of satellite spectrum in India and worldwide (See section on international coordination).

2. Difference in end-use application

Satellite services primarily address connectivity challenges, especially in areas where terrestrial networks have proven economic or technical limitations. Satellite networks complement terrestrial services hence, they should not be considered mutually substitutable. Thus, the spectrum assignment and pricing approach for both must be treated differently.

Globally too, administrative allocation of satellite spectrum is the only approach because:

- satellite spectrum is given on a non-exclusive basis; and
- being a shared resource, it requires global coordination.

Part II: International practices on assignment of satellite spectrum

Unlike coordination of terrestrial spectrum where networks have national boundaries, satellite communication services do not stop at country borders. Therefore, a global agreement is needed to regulate the use of radio spectrum. The Radio Regulations (RR), which is an international treaty binding to ITU Member States, fulfils this function.

ITU has a well-defined coordination process, which takes care of interference in case of each existing and new satellite that is launchedⁱⁱⁱ.

The use of satellite spectrum involves regional coordination with neighbouring regions to avoid interference with spectrum use by other countries, so it is essential for countries to follow a common global standard. Any deviation would disrupt existing and time-tested coordination mechanisms.

India, along with 192 other countries, is a member of the ITU. Satellite systems must be internationally coordinated as per relevant ITU Regulations to avoid harmful interference to radio services of other countries. **The ITU's dispute resolution mechanism provides for only member states to be represented^{iv}. In other words, there are no provisions under the ITU regulations for an exclusive spectrum holder to resolve disputes with other member states.**

ITU also works towards coordination of terrestrial spectrum, however, these networks have national boundaries, hence, post co-ordination, these are left for regulation by individual nations.

Out of the 193 ITU member countries, only few countries have conducted auctions for domestic satellite slots. TRAI has also acknowledged this fact in the **consultation paper** that countries like the US and Brazil, that tried auctioning, have **reverted to administrative allocation^v**.

1. USA

The legislative history of the ORBIT Act, that bans satellite spectrum auction in the U.S.,^{vi} includes a Commerce Committee report which recorded the apprehension that concurrent auctions in other countries could place significant financial burdens on the U.S. owned global satellites^{vii}. Additionally, the Committee pointed out that launch of a global and international satellite system requires substantial resources (before getting licenses), and a spectrum auction would disrupt availability of capital for such satellite projects^{viii}. The U.S. authorises domestic and foreign satellites through an administrative process.

2. Brazil

The that paper itself states that while Brazil attempted to auction the satellite spectrum, but eventually it failed and reverted to administrative allocation. It is worthwhile to note that Brazil made a change in their law to reflect administrative allocation.^{ix}

Part III Relevant legal jurisprudence

Auctioning of satellite spectrum is not in the public interest. Even the Hon'ble Supreme Court, in **re Presidential Reference^x** to the 2G spectrum judgement (a judgement on terrestrial spectrum that is assigned on an exclusive basis), emphasised that **"Auction may be the best way of maximising revenue, but revenue maximisation may not always be the best way to serve public good."**

Further, the Supreme Court observed that **"Auction, as a method of disposal of natural resources, cannot be declared to be a Constitutional mandate under Article 14 of the Constitution of India."**

Part IV: Adverse impact of auction of satellite spectrum in India

- Auction would artificially limit the number of satellite operators sharing spectrum and impact services like broadcasting and broadband. Presently, the spectrum is shared amongst multiple users, whereas exclusively auctioned spectrum would limit users.
- Auctioning of the satellite spectrum would create barriers to entry, and limit participation in the Satcom sector to a few prominent players. Due to uncertainty of final prices in the auction, it may become difficult for smaller entities to participate in expensive auctions and hence they would be disadvantaged. For many small players, making such heavy investments in auction may not be feasible.
- It may lead to only large players participating in the auction. This would hamper innovation, research & development ecosystem for the country's space sector and discourage foreign investment from international players. Presently, there are around 325 private satellite broadcasters sharing spectrum to provide over 560 channels. They differ in terms of purchasing power and some of them are only regional players^{xi}. Mandating them to participate in expensive auction would restrict them from providing services.
- It would also increase the costs for end consumers and limit the availability of services. The cost of buying spectrum in auction would ultimately be passed on to the consumers, thereby making services costly for them.

Part V: Recommendation

Based on the above discussion, we submit that the **existing well-established administrative process is the most efficient method of allocation of satellite spectrum.**

Network licensing and use of spectrum for service delivery are distinct functions. The government should therefore adopt a nuanced approach and distinguish the mode of spectrum allocation for satellite spectrum vis-à-vis terrestrial spectrum.

Contact us:

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Endnotes

ⁱ See, Telecom Regulatory Authority of India, '[Assignment of Spectrum for Space-based Communication Services](#)', (April 2023).

ⁱⁱ See, [nasscom response](#), (March 2023).

ⁱⁱⁱ See, [SHARING THE SKY – ITU'S ROLE IN MANAGING SATELLITE AND ORBIT SPECTRUM RESOURCES](#), (2014).

^{iv} See, <https://www.itu.int/en/council/Documents/basic-texts/Constitution-E.pdf>.

^v See, para 3.122 of the paper- "On examination of the international experience on auction of spectrum for space-based communication services, it has been observed that a few countries, such as USA, Brazil and Saudi Arabia, have conducted auctions for frequency spectrum in the past. USA and Brazil conducted auction of satellite spectrum along with orbital slots. However, both the countries have reverted to administrative assignment".

^{vi} See, [Orbital Act banning satellite auction in US](#) (2004).

^{vii} See, [Commerce Committee report](#), (1998).

^{viii} From Commerce Committee Report "The Committee believes that auctions of spectrum or orbital locations could threaten the viability and availability of global and international satellite services, particularly because concurrent or successive spectrum auctions in the numerous countries in which U.S.-owned global satellite service providers seek downlink or service provision licenses could place significant financial burdens on providers of such services. This problem would be compounded by the fact that the multi-year period required for design, construction and launch of global and international satellite systems usually requires service providers to invest substantial resources well before they obtain all needed worldwide licenses and spectrum assignments. The uncertainty created by spectrum auctions could disrupt the availability of capital for such projects, and significantly reduce the available benefits offered by global and international satellite systems."

^{ix} See, [LAW No. 13.879, OF OCTOBER 3, 2019](#).

^x See, [In re Presidential Reference](#), page 312-314 (2012).

^{xi} See, [Permitted Private Satellite TV Channels-FTA \(as per MIB\)](#)