

Saurabh Sanyal
CEO & Secretary General

22nd June 2023

Subject – Counter Comments on TRAI Consultation Paper on “Assignment of Spectrum for Space-based Communication Services”

Dear Sir,

PHD Chamber of Commerce and Industry (PHDCCI) has been working as a catalyst for the promotion of Indian industry, trade and entrepreneurship for the past 118 years. PHDCCI, acting as the “Voice of Industry & Trade” reaching out to more than 1, 50,000 large, medium and small industries, has forged ahead leveraging its legacy with the industry knowledge across multiple sectors to take Indian Economy to the next level. At the global level, we have been working with the Embassies and High Commissions in India and overseas to bring in the International Best Practices and Business Opportunities.

This is with reference to TRAI Consultation Paper No 6/2023 dated 06-Apr-2023 on “Assignment of Spectrum for Space-based Communication Services”

In this regard, please find enclosed the consolidated issue-wise counter comments as **Annexure-1** for your kind perusal.

We request you to kindly take on record our response and consider the same while finalising the recommendations.

Thanking you,

Yours Sincerely



Saurabh Sanyal

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**PHD CHAMBER OF COMMERCE AND INDUSTRY (PHDCCI) COUNTER
RESPONSE TO TRAI CONSULTATION PAPER ON “ASSIGNMENT OF
SPECTRUM FOR SPACE BASED COMMUNICATION SERVICES”**

At the outset, PHDCCI expresses its gratitude to the Authority for giving an opportunity to submit its counter comments to the stakeholders’ responses received for the TRAI’s Consultation Paper on “Assignment of Spectrum for Space-based Communication Services”.

In their responses to the Consultation Paper, certain stakeholders have attempted to digress from the legal position for assignment of spectrum in India, laid down by Honourable Supreme Court in the 2G Case and DoT’s reference to auction the spectrum for space based communication services.

Instead of focussing on finding an optimal model for auctioning the spectrum for space based communication services, as per the legal position and DoT’s reference to TRAI, these stakeholders have attempted to misdirect this consultation towards administrative spectrum assignment by providing unsubstantiated and ambiguous inputs such as satellite spectrum is a shared resource and thus, there is no question of exclusivity that requires the auction of spectrum for space based communication services. Furthermore, relying on these flawed grounds, certain stakeholders have attempted to infer that there is no suitable model for the auction of satellite spectrum. Another incorrect assertion in certain stakeholders’ responses is that satellite spectrum assignment is governed by ITU Regulations and is to be done only through administrative method.

In view of the above, please find below PHDCCI’s response to some of the important comments raised by stakeholders:-

ISSUE WISE COUNTER RESPONSE

I. Conducting an auction is unprecedented and has not been seen in any other country.

Counter Response:-

- The above comment of the stakeholders is factually incorrect as countries like Thailand and Saudi Arabia have successfully conducted auctions for the assignment of spectrum for space based communication services. Before coming to the specifics of these auctions, it first needs to be mentioned that these stakeholders have deliberately attempted to rely on precedences rather than grounding their inputs on the current developments in satellite based communication services to impose the administrative assignment of spectrum that is guided by their vested interests. It can be seen how the precedence related to age old technologies in GEO/GSO systems (that too erroneously) have been referred and the aspects related to the modern technologies like LEO/MEO and HTS have been completely ignored. These modern satellite networks have attained significant capabilities to provide a stiff competition to terrestrial services in terms of capacity, coverage and latency. Today, the world is

talking about having ultra latency specific applications like online gaming being served by satellite networks.

- However, it is quite ironic, that the vested interests of the stakeholders have guided their submissions and they have attempted to divert the attention to traditional technologies rather than current technologies. Even such reference to regulatory precedences is factually incorrect as, unlike what has been suggested by some stakeholders, there have been many countries that have used a competition auction to assign spectrum for space-based communication. These include Thailand as well as the Kingdom of Saudi Arabia. In the former, an auction was successfully conducted for GSO orbital slots and the right to use several associated frequencies for a 20 year license period. The bids for most of the lots were in excess of the reserve prices and led to windfall gains for the Government and the exchequer.
- In the case of the spectrum auction in Saudi Arabia, the auction was conducted successfully in 2100MHz band for the provision of Non-Terrestrial Network services, including Mobile Satellite Services (MSS), wireless connectivity on aircrafts (A2G), Internet of Things through satellites (Sat-IoT) and hybrid 5G connectivity (5G CGC). The auction process also enables the technology-neutral utilization of available spectrum blocks, setting a precedent for the flexible use of spectrum.
- Similarly, in Brazil, the National Telecommunications Agency (Anatel) has previously conducted auctions for the allocation of orbital slots and the right to use the associated frequencies within these slots. By conducting auctions, Anatel in Brazil has demonstrated the effectiveness of this method in efficiently assigning spectrum resources. These auctions have allowed for the assignment of frequencies in a fair and transparent manner, fostering competition and maximizing the utilization of valuable resources.
- The use of auctions by these countries serves as a valuable example of how this approach can be implemented successfully in different contexts. It highlights the potential benefits of adopting auctions for spectrum assignment, promoting efficient use, fair competition, and transparency in the distribution of spectrum resources.

II. Spectrum for space-based communication services is a shared resource and cannot be assigned exclusively. As a result, a non-exclusive resource cannot be auctioned. Further, the ITU has prescribed an administrative assignment framework.

Counter Response:-

- The view that the spectrum for satellite services is a shared resource and satellite networks are designed to share the spectrum is completely incorrect. This can be understood from the below explanation:
 - ✓ At the outset, if satellite spectrum would have been a shared resource, there would be no need to assign it to the operators. A truly shared resource is one which does not require any assignment and can be used by anyone who wishes to use it.

Therefore, in such case, the specified spectrum band can be declared as a delicensed band so that anyone having the capability to use it, can start using it straightway without seeking any assignment from WPC.

- ✓ However, the reality is contrary to the above (delicensed use of spectrum) for satellite based services as every transmitter and receiver in a satellite network is assigned a specific frequency. Such frequency cannot be used by another transmitter in the same geography since, due to the laws of physics, interference will be caused between the two transmitters.
 - ✓ The above infers that the spectrum assignment for space based communication are fundamentally exclusive as without exclusivity, there would not have been any requirement of assigning the spectrum.
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- Therefore, any spectrum assignment made by the administration is exclusive. However, exclusivity in spectrum assignment for space based services may involve additional aspects as compared to terrestrial services in which different frequencies are assigned to different operators in the same geography. In space based services, since different satellites may have separate look angles, another dimension (look angle) can be added in spectrum assignment. This still does not change the nature of assignment from exclusive to shared use, as the same frequency at different look angles will be assigned to specific operators for their exclusive use.
 - To explain the above example, in the case of GSO, the creation of angular sectors would permit the exclusive usage of even the same frequency in different satellite systems
 - Whereas in the case of NGSO, it is impossible to assign the same frequency to different satellite systems as the NGSO constellations typically use thousands of satellites to provide coverage, and users are handed over from one satellite to another. Such complexity will be further compounded by the existence of multiple NGSO constellations, each consisting of thousands of rapidly moving satellites. This leads to the conclusion that in NGSO, exclusivity needs to be maintained by assigning different frequencies to different constellations.
 - Since, the spectrum can be used for providing services in a country by only those satellites that have been assigned spectrum by the respective administration, it entails exclusive use of spectrum by that satellite and cannot be termed as shared use of spectrum. The sole issue that requires consideration is whether the assignment method should be conducted through auctions or administrative means. In India, Honourable Supreme Court has already decided that the spectrum assignments can be done only through auctions, and hence, an auction is the only viable method to assign spectrum. The law laid down through Honourable Supreme Court Judgement does not differentiate between terrestrial services and space based services and cannot be altered through this consultation process.

- In the USA, the FCC has given processing round priority-based exclusivity to NGSO FSS operators. It is to be understood that if the same spectrum is to be accessible by all on a shared basis, then there would be no need to impose restrictions on the number of operators using the spectrum by way of processing round priorities. Even FCC recognizes that shared use of spectrum will not be a feasible option and exclusivity needs to be created to ensure interference free operations among satellite service providers. Moreover, as a fallback mechanism, FCC has stated that the operators using the same frequency band need to divide the frequency band amongst the operators that have been assigned the spectrum in the same processing round. This infers that the assignments for NGSO systems by FCC are fundamentally exclusive in nature and also creates a non-level playing for the new entrants who are assigned spectrum in subsequent processing rounds.
- It appears that the stakeholders who have projected that the spectrum for satellite services is a shared resource have narrowly interpreted the broad concept of exclusivity. Furthermore, on the one hand, these stakeholders want protection from interference through exclusive assignments (otherwise, this band could have been declared delicensed to be used by anyone) but on the other hand, do not want to pay market determine price for spectrum. However, in view of the Honourable Supreme Court Judgement, spectrum for satellite-based communication services must be assigned solely through auction, which is in line with the policy of the Government (on the basis of the legal position in our country) and also ensures spectrum efficiency and competition in the sector.
- Auctions provide a fair and transparent mechanism for assigning spectrum resources and promote competition by allowing multiple operators to bid for spectrum licenses.

III. Spectrum assignment is governed by the ITU, and India is bound by it

Counter Response:-

- The ITU does not govern the assignment of spectrum within a member state. This is within the dominion of the National Government with the restriction that there should be no harmful interference with stations of other countries. The ITU does not envisage interfering in the affairs of its member states and merely coordinates globally and focuses on ensuring there is no interference.
- The ITU follows a first-come, first-served basis for allocating the orbital slots & frequency and acceptance of satellite constellation filings of GSO/NGSO. Such administrative assignment doesn't hold any legal ground when it comes to the assignment of the spectrum, where the individual administrations have their sovereign right to decide on the method of assignment.
- Any form of administrative assignment creates an anti-competitive environment where the incumbents would hinder the entry and growth of new players. The administration would eventually end up creating rules to protect the incumbents from new entrants (as discussed for FCC in section II of this response).

- It appears that the stakeholders making the above comments have attempted to infer that India should administratively assign spectrum to the entities on a first come, first serve basis, and that too on the basis of the priorities in the ITU filings or in the order of their orbital slot assignment in ITU. Such an approach, if adopted, will shut the doors of space based communication sector in India to the new emerging players. Moreover, such first come, first serve queue in India will be outside the control of the Indian Government and will be based on priority in the ITU filings. Therefore, space based communication sector in India will become an exclusive right of certain multinational companies and will lead to non-inclusiveness in spectrum assignment, defeating the objective of the Government to promote the participation from diverse set of stakeholders in Indian space sector

IV. Auctions will lead to coverage gaps as LEO operators cannot operate with different / partial spectrum

Counter Response:-

- The assertion that exclusive spectrum assignment may result in coverage gaps is wrong. As long as the auction is well designed, it can allow operators to adequately plan their operations without interference. Additionally, exclusive assignments also allow for direct sharing through a private contract that allows an operator to share spectrum with others ensuring adequate availability of spectrum.
- By assigning spectrum exclusively to specific service providers, regulatory authorities can establish clear boundaries and rights for spectrum usage. This allows for efficient coordination and direct sharing between authorized entities on mutual coordination basis, leading to optimal spectrum utilization.
- With exclusive assignments, service providers have the freedom to optimize their spectrum usage based on their specific needs and technologies. They can use the exclusive assignment for flexible use between satellite and terrestrial use cases.
- Exclusive assignments promote certainty and clarity in spectrum management. Authorized entities can confidently invest in infrastructure and technologies, knowing that they have exclusive rights to the assigned spectrum. This encourages innovation, investment, and competition among service providers, ultimately benefiting end-users with improved services and broader coverage.

V. Auctions would hinder sharing of spectrum

Counter Response:-

- Similar to terrestrial spectrum, service providers who have acquired spectrum through auction would have the flexibility to share spectrum among themselves in order to optimize usage and enhance efficiency. The auction method of spectrum assignment does not hinder the sharing of spectrum resources. In fact, it allows market forces to operate freely, enabling operators to negotiate and establish sharing agreements that

best suit their needs and objectives. This empowers operators to find mutually beneficial arrangements that enhance spectrum utilization and promote efficient use.

- By facilitating direct sharing through voluntary agreements, the auction process promotes efficiency, flexibility, and innovation. It allows operators to adapt to changing market conditions, technological advancements, and evolving consumer demands. Operators can optimize their network capacities and coverage by leveraging shared spectrum resources, ultimately leading to improved serviceability and better outcomes for end-users.

VI. Auctions will lead to higher prices for consumers and inhibit the growth of networks to cover remote / underserved areas

Counter Response:-

- Auctions as opposed to administrative assignment, offer a just and transparent process for assigning important and scarce natural resources and promote efficient utilization. Through competitive bidding, they stimulate innovative business models and enhance services, ultimately benefiting end users.
- Contrary to this submission, as has been seen in the case of the terrestrial spectrum, India has seen some of the cheapest pricing of calls and data. This has played a part in the digital revolution that is currently underway across our country. This can be replicated in the case of satellites as well through utilizing auctions.
- It is worth noting that in the case of the terrestrial spectrum, India has witnessed some of the most affordable pricing for calls and data services. This has played a significant role in facilitating the ongoing digital revolution across the country.
- The adoption of auctions for terrestrial spectrum assignment has been instrumental in promoting competition among service providers. This competition has led to improved service quality, expanded coverage, and reduced costs for consumers. The transparent and competitive nature of auctions encourages service providers to optimize their operations, invest in infrastructure, and offer competitive pricing to attract customers.
- Similarly, in the case of satellite spectrum, the utilization of auctions can replicate these positive outcomes. By allocating satellite spectrum through auctions, it promotes competition among satellite service providers, leading to better services, competitive pricing, and increased affordability for end-users.
- The auction process ensures that spectrum resources are assigned to the most efficient and capable operators, fostering a market-driven approach that encourages innovation and investment in satellite communication technologies. This, in turn, contributes to the growth of the satellite industry and supports digital transformation efforts in the country.

- Therefore, by utilizing auctions for satellite spectrum assignment, India can replicate the success witnessed in the case of terrestrial spectrum, promoting affordability, competition, and enabling the continued digital revolution across the nation.
- Moreover, the views of proponents of administrative assignment, based on their vague and unsubstantiated reasons, are their attempts to get access to the spectrum without making upfront payments. This reflects their lack of commitment and non-seriousness in making long-term investments for the future of space based communication services in India.

VII. Auctions will create barriers to entry and inflate spectrum costs through hoarding.

Counter Response:-

- Conversely, administrative assignment prevents the entry of new players into the market as it gives initial entrants priority of use to the detriment of others. This has been seen in the US, where the FCC has been forced to revise spectrum sharing rules as priority / administrative assignment was detrimental to competition. Auctions on the other hand, leave competition to market forces and allow for accurate price discovery.
- Additionally, auctions do not create artificial scarcity of a resource. In case a resource is in abundance, the resource is priced accordingly based on demand and supply. Auctions provide an opportunity for all interested parties to participate on an equal footing, allowing market forces to determine the assignment based on the willingness to pay. This approach helps to establish a true market price for spectrum, ensuring that it is assigned to those who value it the most and are best positioned to utilize it effectively. For a scarce and important natural resource such as spectrum which has such high demand, auctions are the best method for assignment.
- Auctions also serve as an effective mechanism to prevent spectrum hoarding, which occurs when entities acquire spectrum resources without utilizing them efficiently or deploying services. Through the auction process, the spectrum is assigned to the highest bidders who demonstrate their willingness to invest in utilizing the allocated spectrum for commercial purposes and make efficient use of the spectrum. Further, the roll-out obligations encourage service providers to actively utilize the allocated spectrum or else face penalties for non-compliance.
- An administrative method of assignment cannot guarantee faster roll-out of services and also leads to spectrum hoarding by the operators who were assigned spectrum on a first-come-first-serve basis and may also result in blocking of new entrants or creation of a non-level playing field for the new entrants in the satellite market as currently witnessed in the form of priorities established by FCC NGSO sharing rules.

- Hence, the auction would prevent any single entity from acquiring an excessive share of the resource and also ensure equal access to startups to compete in the market.

VIII. Terrestrial and satellite services are not competing and the latter has limited use cases. Therefore, they cannot be treated in the same way.

Counter Response:-

- It is crucial to emphasize that licenses (VSAT/GMPCS) do not impose any limitations on the use cases. While operators may claim that present plans are to use satellite spectrum only in remote areas, there is nothing to bar them from competing directly with terrestrial operators and providing satellite services in both urban and rural areas.
- With the advancement in technology, the distinction of use cases between satellite and terrestrial is diminishing, enabling satellite service providers to provide all use cases of terrestrial service providers. Additionally, there are several statements that have been made by satellite operators regarding use cases of satellite spectrum and future uses. Utilizing a dissimilar assignment method of spectrum for competing services would create an unlevel playing field which could lead to legal challenges as well.

IX. Judicial precedent does not require spectrum auction

Counter Response:-

- The 2G spectrum case made it clear that spectrum can only be assigned through an auction-based mechanism. This unequivocal ruling emphasized the importance of conducting spectrum auctions for assigning spectrum resources in India.
- The presidential reference case affirms that the methods of assignment for spectrum should adhere to the ruling of the Supreme Court in the 2G spectrum case. Therefore, judicial precedent requires assignment only through auction. The law makes no distinction between the spectrum assigned for terrestrial services and spectrum assigned for satellite services.

X. Utilizing the UL for assignment of spectrum will lead to transparency and consistency

Counter Response:-

- The combination of spectrum assignment with a Unified License results in an administrative assignment, reminiscent of the pre-2G case judgment era. Administrative assignment lacks transparency and violates the legal requirements for the assignment.
- The combination of spectrum assignment with a Unified License results in an administrative assignment approach reminiscent of the pre-2G case judgment era.

This administrative assignment lacks transparency and fails to meet the legal requirements for spectrum assignment.

- When the spectrum is administratively assigned, it undermines the principles of fairness, openness, and equal opportunity. The lack of transparency in the assignment process raises concerns about favoritism, arbitrary decision-making, and potential violations of legal provisions.
- In contrast, a transparent and competitive auction-based approach ensures that the spectrum is allocated in a fair and unbiased manner. Auctions provide a level playing field for all participants, allowing them to compete based on their merits, capabilities, and willingness to invest. This approach promotes transparency, accountability, and compliance with legal requirements.
- Therefore, it is crucial to move away from administrative assignment methods and embrace transparent and legally compliant processes, such as spectrum auctions, to ensure a fair and efficient assignment of spectrum resources.