

RJIL/TRAI/2024-25/221

01st November 2024

To,

Shri Akhilesh Kumar Trivedi,
Advisor (Networks, Spectrum and Licensing)
Telecom Regulatory Authority of India,
Tower-F, World Trade Centre,
Nauroji Nagar, New Delhi - 110029

Subject: RJIL's counter comments on TRAI's Consultation Paper on Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services.

Dear Sir,

Please find enclosed the counter comments of Reliance Jio Infocomm Limited (RJIL) on the Consultation Paper dated 27.09.2024 on **Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services.**

Thanking you,

Yours Sincerely,
For **Reliance Jio Infocomm Limited**

Kapoor Singh Guliani
Authorized Signatory

Enclosure: As above

**Reliance Jio Infocomm Limited's counter comments on TRAI's Consultation Paper
on
"Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based
Commercial Communication Services" dated 27th September 202**

1. Reliance Jio Infocomm Limited (RJIL) thanks the Authority for giving us the opportunity to respond to stakeholders' comments on the Consultation Paper on the **"Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services."**
2. At the outset, we reiterate the key points of our submissions as herein below:
 - a) **The consultation paper should be amended and re-issued post giving due consideration to our submissions made in the response to consultation paper. The consultation paper should include the questions on the methodology of spectrum assignment that promotes a level playing field between terrestrial and satellite-based communication services.**
 - b) **TRAI is obliged to evaluate the applicability of administrative assignment versus auction in accordance with the legislative intent outlined in section 4 of Telecommunications Act.**
 - c) **Auction should be a default mode of spectrum assignment for commercial networks irrespective of the type of network.**
 - d) **As per TRAI Act, 1997, the Authority is duty bound to protect the "*Interest of the service providers*", "*Ensure orderly growth of the telecommunication sector*" and "*provide recommendation on the measure to facilitate competition- 11(1)(a)(iv)*". Therefore, TRAI is duty bound to include and address the issue of level playing field not only in its consultation paper but also in its final recommendations.**
 - e) **A lack of a level playing field in spectrum assignments between satellite and terrestrial access services would violate the "same service, same rule" principle fostering market imbalances, hinder investments, impact national economy, reduce innovation, and potentially lead to legal challenges.**
 - f) **The recommendations should be forward looking and should take into account the emergence of Unified Communication Networks.**

- g) **The arguments that satellite frequencies are always assigned in a shared mode and on non-exclusive basis are both factually and technically incorrect and should be ignored.**
- h) **For MSS bands, the frequencies are assigned on exclusive basis, therefore, designing an auction/bidding shall not be difficult exercise, especially, with our experiences of auctioning the spectrum since last 14-15 years. India's spectrum auction methodology has been adopted by many countries as an international precedence.**
- i) **For FSS, due to the frequent inline events, the large size NGSOs constellations will have limited capacity to share spectrum. This will in any case raise the dilemma as to how to assign the limited resources when there are a large number of suiters for the same spectrum. Especially, when 1 or 2 mega constellations will consume all available spectrum that is assigned in shared mode.**
- j) **Considering the above, if on the argument of shared assignment, spectrum is assigned in an administrative manner, then:-**
 - i) The assignment of spectrum should not follow a "First Come, First Serve" approach, whether based on the date of GMPCS/VSAT licensing, INSPACE approval, or ITU filing (*as ITU filings are inherently based on this principle*).
 - ii) **Given that spectrum cannot be assigned to an unlimited number of operators, the government must impose a cap on the number of operators permitted to share spectrum. Thus, it is crucial to establish selection criteria for operators if the number exceeds the capped limit due to shared spectrum constraints.**
 - iii) If the government intends to restrict the number of operators assigned spectrum in shared mode, it cannot rely on a flawed "First Come, First Serve" policy. A transparent and non-discriminatory methodology for selecting operators must be developed.
 - iv) One viable method for achieving transparency and non-discrimination in operator selection is to auction satellite-based communication service authorizations. India has precedents for auctioning licenses, and while this approach would mitigate discretionary allocations and the pitfalls of the "First Come, First Serve" policy, it may still allow one or two large

constellations to monopolize spectrum, leaving little available for smaller constellations, even if they are selected through an open bidding process.

- v) Spectrum charges should reflect the market price established for the nearest spectrum band.
 - vi) Implementing uniform standards for spectrum assignment, pricing, licensing, security protocols, and compliance across both satellite and terrestrial services is essential to cultivate a balanced, fair, and competitive telecommunications ecosystem.
3. We had the opportunity to go through the comments provided by various stakeholders and our issue wise counter comments on a few submissions are provided in following paras. It is also submitted that the following counter comments are without prejudice to our submissions that the consultation paper should be withdrawn and re-issued after giving due consideration to DoT's mandate for considering level playing field issues reference.

A. Level Playing Field

4. One of the stakeholders has made contradictory and flippant comments on the level playing field issue. On one hand this stakeholder claims that level playing field considerations are inherent in all policy decisions and need not be called out on every occasion, on other hand it mentions that there can be no level playing field in terrestrial and satellite-based communication services as there is wide variance in revenue and investments required for both services. This stakeholder then goes to refer to level playing field discussion during the OHD of 2023 CP on same subject. Clearly, if the suspended 2023 CP on same subject needed this discussion, the same cannot be brushed away now. Evidently, this stakeholder is confused and keeps inventing arguments for just the sake of it. We are dealing with all these issues one by one.
5. There is no doubt that level playing field is one of the cornerstones of the Authority's policy making over the years and especially post NTP 1999, when it was specifically mentioned to be a requisite consideration before any policy decision. However, the present case is vastly different. While the intent of Section 4 is to allow administrative spectrum assignment in specific non-commercial cases, it does not imply that Level playing Field is irrelevant when satellite and terrestrial services directly compete in commercial markets. As noted in our response to consultation paper, **the DoT gave**

an express mandate to account for level playing field with terrestrial access services, while recommending spectrum assignment regime for certain satellite-based communication services. In our view, the Level Playing Field is both a legal and economic imperative. The Supreme Court of India has repeatedly underscored that natural resources like spectrum should be allocated transparently, equitably, and without arbitrariness. Ignoring level playing field would contradict these rulings, potentially leading to legal challenges. **Additionally, ignoring the level playing field will also be against the TRAI Act, 1997, that mandates the Authority to take measures to protect the “Interest of the service providers”, “Ensure orderly growth of the telecommunication sector” and “provide recommendation on the measure to facilitate competition.**

6. Any arguments that terrestrial and satellite networks are incomparable overlooks how advancements in satellite services now enable high-speed broadband, direct-to-device (D2D) communications, and other consumer-focused services that compete directly with terrestrial networks for the same customer base. By not applying level playing field, regulatory imbalances will favor satellite operators, disrupting fair market competition. For example, the capacities generated by SpaceX’s Starlink and Amazon’s Kuiper constellations would be massive and would directly rival those of terrestrial operators and would also indeed exceed some of the terrestrial operators. For instance, each Starlink V1 satellite have the capacity of 20 Gbps followed by V2 mini having 80 Gbps capacity¹ and the upcoming V2 would have 10 times the capacity of V1. The Kuiper satellites will also provide significant capacities, with each satellite expected to handle up to 1 terabit per second (Tbps)² of traffic. With these high capacity, low latency capabilities, Starlink and Kuiper NGSO satellites shall be creating huge capacities over India, that will be comparable to the capacities created in the 4G and 5G networks of the leading service providers, therefore, would be directly competing with the major terrestrial operators in India in fact with advantage of better coverage through satellite constellation.

7. Such substantial capacities of NGSO operators underscore the need for level playing field, as both satellite constellations would be competing directly with terrestrial operators in both urban and rural markets. Granting access to spectrum resources without a market determined process would only end up giving spectrum rights to

¹ <https://api.starlink.com/public-files/Gen2StarlinkSatellites.pdf>

² <https://www.cnbc.com/2023/03/14/amazon-first-look-project-kuiper-satellite-internet-antennas.html>

large NGSO players who have the capacity to create imbalance in market and reduce opportunities and equitable access of spectrum resources for smaller players. Further, non-adherence to level playing field concerns could impact India's potential to foster competition and protect not only the existing investments in terrestrial network but would also result in failure to protect its own future satellite systems.

8. As none of the questions or the discussion preceding the questions in the consultation brings out this factor, this is an obvious miss by the Authority and considering the criticality of this discussion, we stand by our submissions to re-issue/amend the consultation paper. The consultation paper also fails in examining the competition issues not only between the satellite and terrestrial players but also among the satellite players. The impact of granting spectrum resources on an administrative basis without factoring the competition and level playing field concerns could result in a huge bias and abuse of dominant position of large NGSO constellations globally. For example, the Bangladesh Regulator (BRTC) ³ has anticipated these dominance risks and has proactively included conditions in its regulatory and licensing guidelines for NGSO operators to mitigate the impact of any single large NGSO player establishing a significant market position. The assignment of spectrum without factoring the level playing field concerns would be detrimental to the Indian Telecommunication Sector and TRAI/DoT should conduct a comprehensive study related to competition, security and technical aspects before any assignment of spectrum resources among competing services.
9. The current revenues and costs have no bearing on the proposal of launching a new generation of services, where the innovations are happening by the day and the chief proponents of space-based communications are reinventing ways to reduce the costs by catch boosters mid-air and reusing major expensive equipment. The costs will come down as the innovations abound and the scale increases. Further, none of the key NGSO constellation provider is claiming that they will provide broadband and voice services to only remote and inaccessible areas (i.e. the areas uncovered by terrestrial coverage). They are undoubtedly planning to cater to the high revenue urban retail customers and enterprise segments of the market and the current claim over non-comparable revenues by this stakeholder is just a hogwash to get cheaper spectrum. Assigning spectrum rights administratively at prices that fail to ensure a level playing field with competing terrestrial services would lead to market imbalances, stifling innovation, deterring investment, and limiting opportunities for

³https://btrc.portal.gov.bd/sites/default/files/files/btrc.portal.gov.bd/notices/cc885110_5eae_48e9_8298_69f7c06b7578/2024-10-29-06-02-ddaeb3cdf0f233e23bfc29d32d4ca261.pdf

the operators. The government should uphold its commitment to fair market practices, making level playing field the foundation for spectrum assignment in satellite services.

10. It is further submitted that the reference to inconclusive discussions in previous OHD on the subject are misplaced and suggest of melancholy at the DoT seeking level playing field treatment for competing services and should be ignored as the consultation process itself was suspended, there is no reason to discuss these trivial claims.

B. Spectrum Assignment Methodology

11. Another false claim has been made by this stakeholder that the Telecommunication Act 2023 has conclusively settled that spectrum for satellite-based services is to be assigned administratively.
12. We submit that accurate interpretation of the provisions under the Act have already been articulated by DoT in its reference dated 11th July 2024. **The Government of India, interpreting the provisions of the Act, did not mandate administrative mechanism as the only option for spectrum assignment. The DoT did not prescribe a specific methodology for spectrum assignment and instead, it left this matter open for discussion, in line with reference to the provisions of Section 4 read with the First Schedule of the Telecommunications Act, 2023.**
13. The Government has maintained an unambiguous and open approach to spectrum assignment methodology in accordance with Section 4 of the Telecommunications Act, 2023. The Section 4(5) of the Act requires that every entry in the First Schedule comply with Section 4(5)(a)(i), (ii), and (iii). These provisions are laid out specifically for the conduct of periodic reviews of the First Schedule, allowing the flexibility to incorporate or exclude specific entries (incl. satellite spectrum assignments) based on evolving technological and economic factors.
14. Therefore, at the cost of repeating our submissions, it is submitted that when providing recommendations on spectrum assignment, TRAI is required to assess whether the use of any given spectrum band complies with these provisions. This obligation holds true and applies regardless of whether the spectrum use case in question is already listed in the First Schedule or is being considered for inclusion after TRAI's study and subsequent recommendation to the Government. If this were not the intent of the Act, the Section 4(5)(a) would have used the term "Add" or "Append" **rather than "Amend,"** as "Amend" encompasses both the addition and

deletion of entries listed in the First Schedule. Further section 57 grants the power to central government to amend the First Schedule of the Act.

15. The relevant portion of **Section 4 & Section 57 of the Telecommunications Act, 2023** is reproduced below, with the relevant sections highlighted:

4(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.

4(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.”

Section 57(1)(a): *Subject to the provisions of this section, the Central Government may amend the First, Second, or Third Schedules, by notification. Any such amendment shall come into force from the date of notification unless stated otherwise.*

16. A careful reading of Section 4 & Section 57(1) suggests the following key points:

- a) As per **Section 4(4)**, the default method for spectrum assignment is **through auction**.
- b) Exceptions can be made to auction, for administrative assignments only for use cases listed in the First Schedule. The Section 4(5)(a) of the Act grants Government the authority to assign spectrum administratively in two specific instances i.e. **for government use, and in cases where an auction is not economically or technically feasible**. The condition

specified in section 4(5)(a)(i) is redundant as both auction and administrative assignment are done in public interest.

- c) Each entry into the First Schedule must meet these criteria not only at the time of inclusion but **should continue to meet the criteria prescribed in Section 4(5)(a)** of the Act at all relevant points of time.
- d) Section 57(1)(a) grants the Central Government authority to amend the First Schedule, allowing it to add or delete entries as necessary.
- e) Under the Telecommunications Act, 2023, both the Department of Telecommunications (DoT) and TRAI are required to test each type of spectrum usage in accordance with Section 4(5)a(i), (ii), and (iii) of the Act.
- f) As technology evolves, the usage of various spectrum bands will change, further various type of networks get capability to provide new services which are same as the services as provided through any other network technology or topology, thereby, requiring not only the addition of new entries but also the removal of outdated ones.
- g) The Government is required to list such use cases in the First Schedule of the Act and keep it updated either at regular interval or at the time when any assignment is being proposed.

17. Therefore, it would be legally inappropriate to base spectrum assignment methodology decisions solely on the basis of current entries in First Schedule without considering the broader legislative intent expresses in Section 4(4) and 4(5), particularly when the Hon'ble Supreme Court has, in repeated judicial pronouncements, held that alienation of spectrum must be through auction.

18. There is no evidence that DoT has conducted any assessment or consultation to test applicability of Section 4(5)(a) of the Act for various satellite-based communication services, before seeking terms and conditions for spectrum assignment from TRAI. Therefore, rather than issuing a predetermined reference seeking recommendations for administrative assignment, the Government has rightly kept the question open and sought TRAI's recommendations on the terms and conditions of the spectrum assignment, including pricing while accounting for level playing field with terrestrial access services. It is well understood that the term and condition of the spectrum assignment must include methodology of selection of parties, especially, due to

higher demand than supply, to whom spectrum is to be assigned and eligibility criteria.

19. Therefore, it is reiterated that TRAI would be failing in its statutory duty, as established by the TRAI Act, 1997, if it did not thoroughly analyze the technical and economic feasibility of spectrum auctions for satellite services under the provisions of the Telecommunications Act, 2023.

20. This position is further affirmed by the legal opinion of eminent Jurist Hon'ble Justice K.S.P Radhakrishnan (Retd.), annexed with our response to consultation paper. We are reproducing a few important points are extracted and reproduced below for ready reference.

44. It appears to be TRAI's understanding that as a result of section 4(4) read with Entry 16 of the First Schedule of the Telecom Act, satellite spectrum can be assigned even to private parties for profit maximizing purposes only by the way of administrative process.

...

45. Such an interpretation cannot be accepted. The Supreme Court has categorically held that the State is duty-bound to alienate natural resources in a fair, transparent, and non-arbitrary manner and that when it comes to spectrum, the only permissible mode of doing so is by way of auction. The decision of the Supreme Court is based on the interpretation of Article 14 of the Constitution. The Telecom Act and the insertion of Entry 16 in the First Schedule does not remove the basis for the decision of the Hon'ble Supreme Court.

....

81. Therefore, in failing to address the requirement of maintaining a level playing field with terrestrial access providers, TRAI has acted in a non-transparent manner, vitiating the entire consultation process.

....

85. Based on the above, I conclude that:

- i. The decision of the Supreme Court in the 2G judgement and the Reference Judgement continues to hold the field and the enactment of the Telecom Act has not altered the position that assignment of spectrum by State to private*

parties by means other than auction is liable to be set aside for arbitrariness under Article 14 of the Constitution.

- ii. *Section 4(4) read with Entry 16 of the First Schedule of the Telecom Act must be read as requiring each instance of assignment of spectrum to be preceded by an analysis of whether or not the deviation from the mandated rule of auction is merited. Such an analysis must be conducted with reference to the parameters laid down in section 4(5)(a) of the Telecom Act.*

21. While TRAI may require time and expertise to deliberate on the exclusive assignment of FSS spectrum for NGSO constellations, spectrum for mobile services—especially in MSS—has historically been assigned on an exclusive basis. **Therefore, there is no fundamental difference between the assignment of MSS spectrum and terrestrial access spectrum. The exclusion of MSS (in L& S Band) from auction, as proposed in entry 16 of the First Schedule, is a clear omission and error. A rigid interpretation of the First Schedule would result in a flawed outcome, where scarce spectrum resources for competitive mobile services might be proposed for assignment through administrative mechanisms.**

22. Due to competitive nature of the communication services provided through various means such as Wireless and/or wireless and through the terrestrial of satellite-based network, DoT's reference letter specifically instructed TRAI to consider a level playing field between satellite-based services and terrestrial access services. The test applicability of Section 4(5)(a) of the Act for satellite-based communication services is especially critical for the following reasons:

- a) Currently, satellite services are limited to backhaul and/or CUG-based VSAT services provided through Geostationary Satellite Orbit (GSO) systems, which do not directly compete with Mobile or Fixed Wireless/Wireline Access Services. Therefore, the spectrum for such use cases was being provisionally assigned administratively.
- b) Recent technological advancements, coupled with the growing demand for ubiquitous coverage, have led to the use of spectrum for satellite-based access services (both fixed and mobile) for the public. These services will be provided not only through GSO systems but also through non-GSO systems. Non-GSO systems present significant interference challenges due to frequent in-line events caused due exponentially large number of satellites as compared to number of satellites in GSO constellations, which necessitate either exclusive spectrum assignment or a limitation on the number of operators using spectrum in a shared mode. In both

such cases, Government would be required to formulate a criterion for selection of operators to whom the rights to use frequencies are to be granted or to whom the license capable of getting the shared spectrum rights on administrative basis are granted.

- c) Several global satellite constellations (e.g., Starlink/Space X, Kuiper-Amazon, OneWeb-Eutelsat, SES-Jio, and Telesat etc) have expressed interest in obtaining spectrum and market access rights in India. These constellations will primarily provide Access Services, directly competing with terrestrial networks both in Mobile and Fixed Wireless Access (FWA). Given that terrestrial networks acquire spectrum, both for Mobile & Fixed Wireless Access through auctions, a fair and transparent auction system for satellite services is essential to ensure level playing field between these similar service providers.
- d) Neither TRAI nor the DoT conducted a consultation or study prior to the inclusion of Entry 16 in the First Schedule of the Telecommunications Act, 2023 nor did any consultation on the interpretation and/or intent of the Entry 16 in the First Schedule. This entry was made based on the DoT's past experience with the administrative assignment of spectrum purely for backhaul and CUG services through GSO satellite systems.
- e) We submit that there cannot be a different mode of assignment when the end services provided by terrestrial spectrum acquired through auction method and the satellite spectrum are same. **Therefore, it is critical to conduct a consultation on the feasibility of spectrum auctions, taking into account technical and economic reasons including the current and future technological developments, the demand for spectrum, and the gap between supply and demand, revenue potential for the exchequer etc. Any amendments to the First Schedule should be made based on this analysis, to ensure the spectrum assignment process remains transparent and non-discriminatory.**

23. Therefore, the claims that the Telecommunication Act has settled in favour of administrative assignment of spectrum to satellite based services is a clear misinterpretation and should be ignored outrightly and a fresh/amended consultation paper should be issued to address all the concerns articulated above.

C. Spectrum Charging Methodology

24. A large number of stakeholders have submitted that the spectrum should be assigned administratively on non-exclusive shared basis, with the underlying effect of getting spectrum at nominal costs and post that the spectrum charge should be kept to 1% or less than 1% of AGR. One stakeholder has sought only administrative recovery at 0.1% cost.
25. We submit that spectrum is valuable and finite resource and an important source of revenue for Exchequer. The Government as trustee of the people has to develop optimum policies for pricing and distribution of this resource to ensure that it is used efficiently, and that Exchequer is suitably compensated. The spectrum pricing should factor in the projected capacity of satellite constellations and potential revenue scales, particularly in urban and enterprise segments, ensuring that satellite operators contribute fairly to the exchequer in line with terrestrial operators. The spectrum pricing and assignment methodology adopted should not result in putting equitable access at risk and be anti-competitive where the future Indian constellations would have no incentive to participate and develop their systems for Indian market.
26. The fundamental regulatory principle that similar services should follow similar rules be adhered while deciding the charging methodology and assignment of spectrum. The spectrum pricing should ensure parity between satellite and terrestrial networks, ensuring prices remain aligned with fair competition principles. Spectrum pricing should be structured to prevent monopolistic control by any single entity, ensuring a competitive market where multiple operators have the opportunity to participate and thrive. Providing satellite operators with reduced costs through administrative spectrum assignment would create an anti-competitive environment where satellite services gain an unfair advantage. Both satellite and terrestrial providers should face similar conditions for providing access and broadband services.
27. We have absolutely and unequivocally opposed the proposal of administrative assignment of spectrum in our response to consultation paper and our submissions in previous paragraphs as such an assignment is legally untenable and violative of requirements of level playing field. Without prejudice to the same we submit that even if administrative assignment is done, the cost of right to use spectrum cannot be an imaginary number as it has to be comparable, nay, equal to the cost borne by terrestrial services providers under auction.

28. We reiterate that in the unlikely event of administrative assignment of spectrum, the application of this spectrum charge should be based **completely on level playing field principles. It should be kept equal to the auction payout of nearest spectrum band as per its auction determined price.** This charge should be exclusive of spectrum usage charge and license fee applicable under the relevant license authorization as is done by competing terrestrial service providers. TRAI should propose for establishing an independent regulatory mechanism to review spectrum pricing parity between satellite and terrestrial networks, ensuring prices remain aligned with fair competition principles. We submit that Auction method of assignment and pricing through a market determined approach is the best method suitable to resolve all the issues related to level playing field, fair and equitable pricing, undue favouritism or bias, non-efficient use of spectrum resources, monopolistic practices and loss to exchequer.
29. **Further, in order to ensure efficient utilization of spectrum, the minimum spectrum charge should be equivalent to total payment payout of the benchmarked auctioned spectrum and there should be lock in period of 10 years. These charges should be payable for the lock in period i.e. if the operator surrenders the spectrum within 10 years, they must pay for the lock in period of 10 years as paid by terrestrial operators. This is critical to ensure efficient spectrum utilization and to protect Exchequer revenue** and ensure level playing field for orderly growth of the sector.
30. We also reiterate our submissions that in no case, the spectrum charge should be based on Adjusted Gross Revenue (AGR), as:
- a. AGR based spectrum charge will be based on the principle of “Pay As You Earn” and will be will be discriminatory vis-à-vis terrestrial media, which is required to be paid “upfront” irrespective of the revenue received by providing such services.
 - b. **An AGR-based charging model will offer the most critical resource at a low-risk cost, requiring only a minimal revenue share as compared to terrestrial operators, who bear the financial burden of holding spectrum for at least 10 years. This cost advantage will create significant regulatory arbitrage in favour of satellite operators, enabling them to provide broadband access services directly to consumers of terrestrial operators, thereby placing those terrestrial investments at even greater risk.**

- c. AGR based spectrum charge will lead to different cost of the same spectrum for different constellations/operators. This will disturb the level playing field for the various satellite operators/constellations for utilizing the same spectrum resource. In fact, it will amount to penalizing an efficient operator generating more AGR resulting higher AGR based spectrum charge.
 - d. AGR based spectrum charge is dependent on the tariff and the rollout of services by the operators without payment of any interest and therefore, the amount of spectrum charge will be variable for the purpose of Government Exchequer.
 - e. This will not encourage operators to rollout services more effectively to recover their initial capital cost.
31. Further, the non-exclusive and shared use is a popular misconception spread by a section of stakeholders, without any substantial grounds. We have already busted this myth in our response to the consultation paper and are not reiterating all points here for the sake of brevity. However, we submit that all possible concerns raised by this group of stakeholders can be easily addressed by implementing well-defined auction model for various type of links supplemented by well-defined spectrum sharing, leasing, and trading policies.

D. Spectrum bands for FSS and MSS services

32. Most stakeholders have supported for all bands based on ITU-RR and Indian NFAP like S, L, V, Ku, Ka, Q/V-band should be made available, as per the services offered by them and as per their current allocations in other regions. Auctioning all viable bands on flexible use basis ensures fair access and efficient utilization for both satellite and terrestrial operators. The government should support an inclusive, technology-agnostic spectrum policy that addresses the rapid convergence of satellite and terrestrial technologies thereby maintaining a flexible framework adaptable to future technological advances, in line with evolving global standards.
33. We submit that India should not be influenced by the global allocations and due to converging and evolving nature of technologies and the advent of unified communication networks, all available spectrum should be auctioned for flexible use in a technology agnostic manner. The choice of technology viz. FSS, MSS or terrestrial use should be left to the service provider.
34. One stakeholder has unnecessarily and inopportunistly sought to raise usage of mmWave spectrum auctioned in India. It is submitted that market price for this

spectrum has been paid to the Exchequer and use cases are evolving in these bands, as is the case with 5G and 6G services globally. We submit that such comments would have made sense if the stakeholder was willing to pay the market price of spectrum and not hide behind the cloak of shared spectrum resource and give it to me 'free of cost' based arguments.

E. Interference

35. It is observed that most NGSO constellation operators have expressed support for the sufficiency of ITU-RR provisions and mutual coordination to address interference issues. **Some have discreetly requested the Authority to facilitate good-faith inter-operator coordination. However, one GSO satellite service provider has challenged the adequacy of these claims, highlighting ongoing non-compliance by NGSOs with ITU provisions. This provider has urged TRAI to intervene and impose requirements on these constellations to protect GSO services from interference, suggesting measures such as restrictions on EPFD to ensure effective sharing by NGSOs.**
36. With the deployment of thousands of satellites—approximately 40,000 by just two leading entities—the **potential for inline events will increase exponentially, making effective interference coordination by Government, INSPACe, WPC, and TRAI nearly impossible.** Additionally, the absence of a framework for NGSO-to-NGSO interference coordination established by the ITU further complicates regulators' ability to mitigate interference globally. Without such a framework, there is a risk that NGSO spectrum resources, if assigned administratively, could be grabbed by one or two leading constellations, thereby denying spectrum rights to smaller and newer constellations and competing players.
37. We contend that the differing perspectives among satellite operators at this early stage underscore our assertion that ITU-RR provisions and mutual coordination will be inadequate for managing interference as we move toward **millions of user devices, tens of thousands of satellites, and numerous competing satellite-based communication service providers.**
38. Therefore, as previously stated, the only viable solution is to assign spectrum exclusively through auctions, complemented by policies that facilitate spectrum sharing and coordination among operators. Adhering to Article 22 of ITU-RR will ensure efficient interference management while allowing service providers the

flexibility to optimize their networks without excessive reliance on government intervention.

39. **Auctioning spectrum will not only effectively address interference issues but also provide operators with the flexibility to acquire optimal spectrum resources and promote equitable pricing for all participants.**

F. Other issues

40. Regarding the protection distance for satellite earth station gateways, most stakeholders have expressed a preference for relying on coordination measures, such as the recommendations outlined in ITU Article 22 and Resolution 76. One stakeholder proposed that, should coordination efforts fail, spectrum splitting could be employed. However, this approach appears to overlook the broader context.

41. If we envision a robust SatCom sector with multiple independent satellite-based service providers alongside unified communication networks, then piecemeal solutions will be inadequate. **This would result in the Department of Telecommunications (DoT) and TRAI having to continuously intervene to resolve unsuccessful mutual coordination efforts.** As noted by one GSO provider, there are significant coordination challenges within the satellite services group. We believe these issues will only intensify with the entry of more NGSO satellites.

42. We reiterate our position that, given the rapid increase in satellite constellations, the optimal way to manage the demand for gateways is to establish **Gateway Exclusion Zones (GEZs)** where terrestrial transmissions and other satellite networks using the same frequency bands are prohibited. This measure will help prevent any potential interference. **A balanced distribution of GEZs can be achieved through a transparent auction process, which would prevent the hoarding of these zones and ensure adequate coverage for both terrestrial services and satellite operators utilizing those frequencies for their user terminals.**

43. We support the proposal from one stakeholder that, to ensure privacy and security, all traffic from SatCom operators should be routed through Indian ground stations to prevent uncensored broadcasts. Additionally, these services should be subject to the National Security Directive for Telecom Services (NSDTS). Moreover, the principle of "Same Service, Same Rules" should apply to competing SatCom services.