

JIO SATELLITE COMMUNICATIONS LIMITED

CIN: U72900GJ2021PLC126518

JSCL/TRAI/2024-25/030

25th October 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: JSCL's 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 comments of Jio Satellite Communications Limited (JSCL) 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 **Jio Satellite Communications Limited,**

Mahipal Singh
Authorized Signatory

Enclosure: As above

**Jio Satellite Communications Limited’s 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 2024.**

Preface

1. Jio Satellite Communications Limited (JSCL) is a wholly owned subsidiary of Jio Platforms Limited (JPL). JSCL is a holder of Unified License (GMPCS, NLD, ISP and VSAT Authorizations) offering satellite-based communication services in the country using GSO satellites and planned NGSO satellite services. We have formed a joint venture with SES Satellites to offer these services.
2. We thank the Authority for giving us an opportunity to share our views on this critical consultation process on assignment of spectrum for satellite-based communication services. We had also participated in the previous consultation process on the subject and request the Authority to treat our submissions as part and parcel of these comments. **We reiterate our support for an auction-based process for spectrum assignment for space-based communication services.**
3. We submit that besides the level playing field with terrestrial operators, Auction based assignment provides **equal opportunity to all satellite players amongst each other, especially to new entrants like JSCL.** The administrative assignment, by proposition itself is **anti-new entrant, and unpredictable due to its ‘first come, first serve’ nature.** **Further, we understand this methodology is still not legally tenable for commercial services due to the Supreme Court judgement in 2G case, despite the promulgation of Telecommunication Act 2023.**
4. **Therefore, in order to get an equal opportunity in Indian satellite-based communication services (SatCom) market as well as to ensure that our investments will be protected by the law of the land and that we will have a sufficiently large tenure of 20 years to implement our business plans, we support an auction-based spectrum assignment mechanism for SatCom services.**
5. In our submissions to the previous consultation paper, we had submitted that the Authority should focus on deriving an optimum auction model for SatCom services as all the positions and arguments against auctions with justification derived from irrelevant precedence, non-applicable ITU Regulations, alleged and unproven non-feasibility, and self-serving claims of spectrum being a shared resource, basically **stem from self-interest and the SatCom incumbents fear of opening the market to new entrants like JSCL. The only beneficiary of the administrative assignment based on ITU filings will be incumbent multi-national players at the cost of new entrants.**

6. It is further submitted that neither JSCL nor any other global SatCom service provider is seeking to offer the service only in remote areas solely as public welfare measure, as the monetization and cost recovery will essentially happen in high ARPU urban areas only. Therefore, we do not want to make a misleading claim that this is a complementary service and not comparable to terrestrial services. **We would prefer to acquire technology agnostic spectrum for 20 years in auctions so that we can meet our service aspirations and be able to offer all permissible solutions to all possible customers without any legal or regulatory restrictions.**
7. As per our business plans (and those of other global SatCom players), the desired outcome is to direct services to the customers and leveraging the spectrum holdings to serve millions of connected devices in dense geographies. This is possible only with exclusive assignment of interference free spectrum, as in case previous generation policy of shared spectrum is implemented, the interference will be so high that it will make tendering of service almost impossible.
8. Any shared spectrum assignment will be detrimental to new operator interests as we will be left at the mercy of closed club of incumbent operators for interference management and coordination. It is further submitted that even now the assignment is generally exclusive by design. A global example of administrative exclusive use can be seen in FCC rules for NGSO-FSS system (FCC 23-29)¹. The exclusivity is provided through priority in processing rounds and any subsequently approved NGSO FSS systems is required to coordinate with and protect the communication systems assigned rights during the earlier-round of assignment. Thus, effectively, the approved set of NGSO operators utilize the same frequencies through self-coordination, which is another way of describing dividing the entire spectrum in that band for exclusive use between the approved operators. **To add to this FCC also provides for a default spectrum split process in case of failure to coordinate.**
9. We reiterate that the auctions give a predictable and open path for market entry. The eligibility criteria are made available transparently and all eligible participants can acquire spectrum in the auctions by bidding suitably. **In fact, the auction gives more opportunities to new entrants than vague and subjective criterion under the administrative assignment of spectrum. The worst of administrative assignment criteria is "first come, first served" that not alone lacks transparency and promotes corruption but is also legally untenable.**

¹ <https://www.federalregister.gov/documents/2023/06/20/2023-12803/revising-spectrum-sharing-rules-for-non-geostationary-orbit-fixed-satellite-service-systems>

10. The possibility of auction-based assignment has not been closed in DoT reference dated 11th July 2024, as the Government of India has correctly interpreted the provisions of the Telecommunication Act 2023, and it did not mandate administrative mechanism as the only option for spectrum assignment. The mere fact that the DoT did not prescribe a specific methodology for spectrum assignment and instead, it left this matter open for discussion tilts the field towards auction.
11. We submit that while the current spectrum assignments differentiate between Fixed-Satellite Services (FSS) and Mobile-Satellite Services (MSS) based on outdated technology limitations, advancements like beamforming have reduced incompatibility between these services and same spectrum can be used for both FSS, MSS and terrestrial networks.
12. This is established by the fact that small handheld devices in Ku and Ka bands already operate without interference. Accordingly, it is requested that all spectrum bands available for any communication service should be auctioned together for flexible use in future auctions.
13. With inclusion of Satellite in 3GPP Release 17 and with networks integrating mobile, fixed, terrestrial, and satellite networks, the next-generation satellite operators will need not only reliable access to these frequencies but also more flexible access with an ability to provide both fixed and mobile use cases in the assigned spectrum bands. Such true convergence of technologies and spectrum bands will accelerate towards establishing a truly integrated network where the end user will seamlessly connect and switch over multiple networks.
14. Furthermore, and pertinently, the size of customer premise equipment (CPE) is also reducing drastically for the satellite-based services and modern CPE can fit in a backpack as well thus, there is effectively no difference in either service or target customer, thus there should be no difference in spectrum availability or assignment methodology.
15. Nevertheless, and without prejudice to our submissions, in case it is decided to assign the spectrum administratively at a spectrum charge, then in the application of this spectrum charge, no undue advantage should be given to incumbent satellite operators and spectrum charge should be equal to **auction payout of nearest spectrum band as per its auction determined price.**
16. This will ensure that no restrictions are imposed on SatCom operators by means of validity of right to use spectrum, area of operations and customers to be served. In order to ensure the **efficient spectrum utilization of spectrum, while also supporting**

faster rollouts, the SatCom operators should also be given the option of making the payment in equated annual instalments, as is done by terrestrial operators for auctioned spectrum. We do not support Adjusted Gross Revenue (AGR) based spectrum charge, as the same is anti-roll-out and benefits incumbent operators.

17. For Gateways installation, in view of rapid increase in satellite constellations and expected growth, we propose creation of **Gateway Exclusion Zones (GEZs)** where terrestrial transmissions and other satellite/ satellite constellation network on the same frequency bands are prohibited to avoid interference, if any, among each other. These zones will vary in size and their number will be controlled to avoid **coverage gaps**. A balanced level of GEZs can be created through a transparent **auction process** to avoid hoarding. We request the TRAI to also consider our counter comments submitted to TRAI in its earlier consultation process.

18. Conclusions

1. **Auction should be a default mode of spectrum assignment for commercial SatCom networks irrespective of the type of network to protect the interests of new entrants.**
2. **The recommendations should be forward looking and should protect the interest of new entrants.**
3. **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.**
4. **Notwithstanding the above, if administrative assignment is done, then:-**
 - a. **The Assignment should not be done on the basis of “First come, First Serve” approach.**
 - b. **The Spectrum charge should be equivalent to the market price discovered for the nearest spectrum band.**

A. Issue wise responses:

Q1. Which frequency band(s)/ range(s) should be considered for the assignment to NGSO based Fixed Satellite Services for providing data communication and Internet service? Please provide a detailed response separately for the user link and feeder link.

&Q2. Which frequency band(s)/ range(s) should be considered for the assignment to GSO/ NGSO based Mobile Satellite Services for providing voice, text, data, and Internet service. Please provide a detailed response separately for the user link and feeder link.

JSCL Response:

1. As submitted in preface, technology-based spectrum assignment done during administrative assignment era has lost its relevance and progressively all spectrum bands have become technology agnostic. Therefore, in view of the technological advancements and the evolving standards leading to technology-agnostic and topology-agnostic networks, all spectrum bands should be available to all services be it FSS, MSS, terrestrial or backhaul.
2. With the inclusion of satellite in 3GPP Release 17 and the integration of mobile, fixed, terrestrial, and satellite networks, next-generation satellite operators will require both reliable and flexible access to frequencies, enabling fixed and mobile use cases in assigned spectrum bands. This convergence will drive the development of a seamless, integrated network for end users.
3. Further, there should be no distinction in spectrum assignment rules based on these technological differences (FSS, MSS, terrestrial & backhaul) as it leads to inefficient spectrum utilization and all spectrum should be assigned through transparent auction. **Therefore, we propose eliminating the distinction between FSS and MSS to support technological advancements. Further, we support flexible use of spectrum as it promotes efficient utilization, which is crucial for such a scarce and valuable natural resource.**
4. It is reiterated that the Authority should maintain its technology-neutral approach, and entire spectrum bands identified for satellite services should be made available to the service provider according to their business plan. Further, frequency bands such as L, S, C, Ku & Ka should be considered for the flexible assignment in a technology agnostic manner to all available technology i.e. terrestrial network and GSO and NGSO based networks.
5. We further submit that Satellite communication as an overall system can be modelled using both user link & feeder link together where satellite frequencies can be used

interchangeably for satellite gateways and/or user links. Satellite frequencies are used today in varying combinations and proportions on multiple satellites to support the full range of communications applications, depending on the varying customer demand.

6. In order to meet the growing and varying demand and to ensure that spectrum is efficiently utilised, flexible usages of spectrum for user link & feeder link, should be ensured. Hence, it is prudent that the entire spectrum bands identified for satellite services should be made available for both gateway links and user links.
7. **To summarize, the spectrum assignment process should avoid creating artificial distinctions between FSS, MSS, or terrestrial networks. The Authority should continue its technology-neutral approach, ensuring that all spectrum bands identified for satellite services are available for auction and can be used in accordance with ITU-RR/ NFAP and the successful bidder's business plan.**
8. **Further, in continuation to our submissions in preface, the primary consideration for the Authority should be to unequivocally declare that Auction is the only method of assignment of spectrum. This is not only new entrant and investment friendly, but also only legally tenable option.**

Q3. What should be the maximum period of assignment of spectrum for

(a)- NGSO based Fixed Satellite Services for providing data communication and Internet services, and

(b) GSO/ NGSO based Mobile Satellite Services for providing voice, text, data, and Internet services?

Please provide a detailed response along with international practice in this regard.

JSCL Response:

1. As a new entrant, **we would require a sufficiently large tenure to ensure that our investments are protected, and we have time to bring our business plans to fruition.** We believe that a longer spectrum assignment duration provides operators with a stable regulatory environment, allowing to invest in infrastructure and technology without the uncertainty of frequent renewals.
2. The validity period of spectrum should not sought to be linked with useful life of satellites as the satellite resources, just like terrestrial network elements will continue to be augmented as per business requirements and new satellites will replace the older satellites to maintain the quality of services and service continuity, replacement satellites are planned.

3. Further, under a level playing field regime, the validity of spectrum assignment through auction for one mode of communication service should be same as competing mode of communication services. Accordingly, we recommend a 20-year tenure.
4. However, in case the Government decides for administrative assignment, then the maximum period for such assignment shall be 3 years. After this period, the DoT must reassess each type of spectrum usage in accordance applicable laws before reassigning the spectrum resource.

Q4. For assigning spectrum for NGSO-based communication services, whether every ITU filing should be treated as a separate satellite system? Please provide a detailed response alongwith international practice in this regard.

JACL Response:

1. We reiterate our submissions that spectrum rights for NGSO-based communication services be awarded only through a transparent spectrum auction.
2. Once exclusive spectrum rights are assigned through auction, the successful bidder should have the flexibility to choose their satellite ITU filings within their constellation for providing satellite services after duly approved by INSPACE & DoT. Spectrum usage rights should not be tied to only a single ITU filing for a satellite constellation and operators should be allowed to provide services via satellites associated with multiple ITU filings for NGSO constellation network.
3. Spectrum awarded for a 20-year period should enable operators to fully utilize the assigned resources by upgrading to next-generation satellite systems and submitting new ITU filings to benefit from technological advancements. Linking spectrum rights to a specific ITU filing would limit operators' ability to maximize spectrum use with upgraded systems, contradicting the technology-neutral approach outlined by DoT in the NIA conditions of spectrum auctions.

Q5. Whether the provisions of ITU-RR are sufficient to resolve interference related challenges and coordination issues? If not, what additional conditions should be prescribed while assigning frequency spectrum for –

(a) NGSO based Fixed Satellite Services for providing data communication and Internet services; and

(b) GSO/ NGSO based Mobile Satellite Services for providing voice, text, data, and Internet services?

Please provide a detailed response alongwith international practice in this regard.

JSCL Response:

1. **The current ITU Radio Regulations provide a foundational framework for addressing interference and coordination issues among satellite systems for NGSO satellites to minimize interference with existing services.** These regulations set technical limits on power flux density (PFD) from NGSO systems to protect incumbent users.
2. However, the current NGSO system relies heavily on bilateral coordination/ negotiations between concerned administration to resolve interference issues. Therefore, the current provisions of ITU-RR are not sufficient to resolve interference related challenges and coordination issues as these are dependent on long bilateral/multi-lateral coordination, which will get tougher with the growth of NGSO systems.
3. Further, the rise in **NGSO satellite systems introduces additional complexity caused by a very large number of unmanageable in-line events, both for user and feeder link, due to the larger number of satellites operating in frequency bands.**
4. Hence, managing interference with the increasing deployment of NGSO satellites moving at very high speeds deployed by multiple satellite operators using same frequencies is not possible and only solution to this impending quagmire mired by frequent **in-line events** in both user links and gateway links is exclusive assignment of spectrum through auction.
5. In summary, the exclusive spectrum assignment through auctions, supplemented by policies allowing spectrum sharing and coordination between operators ensures efficient interference management while providing flexibility for service providers to optimize their networks without heavy reliance on government intervention.

Q6. For satellite earth station gateways of different satellite systems operating in the same frequency range, whether there is a need to prescribe a protection distance or any other measures to avoid interference from each other–

(a) Between the gateways of GSO and NGSO systems; and

(b) Between the gateways of NGSO systems?

If yes, please provide a detailed response along with international practice in this regard.

And

Q7. In case the spectrum assigned for satellite gateway links is also assigned to terrestrial networks such as Fixed Service, IMT etc., what protection distance or criterion should be included in the terms and conditions of the assignment of spectrum for satellite gateway links to avoid any interference to/ from terrestrial networks? Please provide a detailed response alongwith international practice in this regard.

And

Q9. Whether there is a need to prescribe any conditions to mitigate the risk of scarcity of satellite gateway sites? If yes, please provide a detailed response along with international practice in this regard.

JSCL Response:

1. The feeder links of GSO & NGSO satellite systems require significantly more spectrum than user links as these connect the satellite with the gateway and handle aggregated traffic from multiple user terminals. Nevertheless, the coexistence of GSO and NGSO gateways at the same location is feasible with appropriate regulatory frameworks, technical measures, and operational practices in place. In India, TEC/ DoT has already issued guidelines to ensure the protection of GSO systems, in-line with ITU-RR that address any potential interference.
2. However, situation is quite different in case of collocating gateways for multiple NGSO systems and a careful approach is required for defining the exclusion zone. Determining the appropriate exclusion zone between two different NGSO gateways is crucial for minimizing interference.
3. Considering the growing demand for satellite services, it is expected that the requirement of gateway sites will increase, and Government will be required to identify specific locations for gateways to provide clarity and predictability. These pre-determined locations can be termed as **Gateway Exclusion Zones (GEZs)** where terrestrial transmissions on the same frequency bands are prohibited. These zones need to be carefully managed to prevent interference with terrestrial networks like 5G (IMT) and should be limited in number to avoid coverage gaps.
4. The GEZs should be **assignment through Auction Process for Gateway Exclusion Zones (GEZs)**:
 - a) GEZs should be auctioned on a **geographic basis** (by district) to assign spectrum for feeder links.
 - b) **Exclusion zone radius** should be determined through a coexistence analysis.
 - c) A **district cap** should be set, limiting any service provider to a maximum of 10% of the districts or 10 districts.
 - d) The successful bidder will coordinate with WPC wing of DoT to determine the precise location within the GEZ to minimize interference.

5. This approach ensures that GEZs are carefully allocated, minimizing interference with terrestrial services, while allowing flexibility for satellite service providers to efficiently deploy their systems.
6. In situations where suitable space is not available during the joint survey, the WPC/INSPACE may assign the neighbouring district where no other service provider has been assigned the spectrum. This assignment should be made without imposing any additional costs on the service provider. This approach would ensure that service providers can still access spectrum, facilitating the deployment of their satellite systems while minimizing any potential disruptions or delays.
7. Such study and site finalization must be completed within 60 days from the date of auction and the validity period of the spectrum shall start from the date the location is finalized by WPC and communicated to the bidder.

Q8. In case the spectrum assigned to the satellite user link is also assigned to terrestrial networks such as Fixed Service, what criterion should be included in the terms and conditions of the assignment of spectrum for satellite user links to avoid any interference to/ from terrestrial networks? Please provide a detailed response alongwith international practice in this regard.

JSCL Response:

1. The telecommunications Act, 2023 promotes flexible use of spectrum enabling efficient use of spectrum between different use cases and Authority was also supportive of the same in previous exercise.
2. In continuation of the current auction policies, the assignment of so-called satellite spectrum should be exclusive, technology agnostic and should promote flexible use and efficient utilization of scarce spectrum resources. This will take care of any possible interference issues.

Q10. In addition to the roll-out conditions recommended by TRAI for satellite-based Telecommunication Service Authorisation through its recommendations on the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023 dated 18.09.2024, whether there is a need to impose certain additional roll-out obligations for the assignment of frequency spectrum for –

(a) NGSO based Fixed Satellite Services for providing data communication and Internet services;

(b) GSO/ NGSO based Mobile Satellite Services for providing voice, text, data, and Internet services?

Please provide a detailed response along with international practice in this regard.

JSCL Response:

1. The requirement of rollout obligations is essential to ensure the effective utilization of spectrum by service providers within a specified timeframe and to ensure serious participation in building networks.
2. We suggest that the roll-out obligations should be in two phases. The first phase should pertain to operationalization of the gateway, which should be completed within three years from the date of obtaining all necessary governmental clearances for its establishment. The Government can provide case-to-case basis extension in case of delays on account of environmental and other clearances.
3. In second phase of roll-out, the service provider should be required to launch commercial service across India, including islands with its satellite or satellite constellation in line with the roll-out obligations for mmWave spectrum for terrestrial services in order to ensure level playing field.

Q11. Whether there is a need to introduce a provision for surrender of frequency spectrum prior to the expiry of the period of validity of spectrum assigned for –

(a) NGSO based Fixed Satellite Services for providing data communication and Internet services;

(b) GSO/ NGSO based Mobile Satellite Services for providing voice, text, data, and Internet services?

If yes, what should be the process, and associated terms and conditions such as minimum period of spectrum holding, notice period, surrender fee, etc.? Please provide a detailed response with justifications.

JSCL Response:

1. There is no need for a separate spectrum surrender provision for both **NGSO-based FSS** and **GSO/NGSO-based MSS** and it should be on line of the prevailing conditions for terrestrial spectrum acquired through auction.

2. **Spectrum Trading Option should also be available on similar lines.**

Q12. Whether there is a need to prescribe timelines for processing the applications for the assignment of frequency spectrum for-

(a) NGSO based Fixed Satellite Services for providing data communication and Internet services;

(b) GSO/ NGSO based Mobile Satellite Services for providing voice, text, data, and Internet services?

Please provide a detailed response with justifications.

JSCL Response:

1. Yes, it is a must-have in view of the “Ease of Doing Business” targets set by the Government of India. The NGSO satellite operators rely on timely access to spectrum to roll out services quickly and remain competitive. Any delays in spectrum assignment can lead to missed business opportunities, hinder service deployment, and delay the introduction of innovative technologies.
2. Hence, there is a need to set the clear timelines on spectrum availability through an auction calendar to provide certainty for satellite operators who often plan significant investments based on spectrum availability.
3. The DoT should adhere to a time-bound process for handling licensing-related approvals, including in-principle network approval, uplink permissions etc. to ensure efficiency and timely service delivery. The approval timeline should not exceed two months from the submission date.

Q13. Whether there are any other suggestions related to assignment of spectrum for-

(a) NGSO based Fixed Satellite Services for providing data communication and Internet services;

(b) GSO/ NGSO based Mobile Satellite Services for providing voice, text, data, and Internet services?

Please provide a detailed response with justifications.

JSCL Response: We reiterate our submissions that auction of spectrum is the panacea for all perceived or not perceived woes and it should be implemented to protect new entrant interests and already sunk investments.

In a competitive market, spectrum auctions ensure transparency, fairness, and equitable access to this critical resource, thereby promoting healthy competition. For new entrants,

auctions provide a level playing field, allowing them to secure spectrum without being disadvantaged by global incumbents, thereby encouraging innovation and growth.

Q14. Should spectrum charges for NGSO-based FSS providing data communication and Internet services, be levied:

- i. On a per MHz basis,**
- ii. On a percentage of Adjusted Gross Revenue (AGR) basis, or**
- iii. Through some other methodology?**

Please provide a detailed justification for your answer.

And

Q15. In case it is decided that spectrum charges for NGSO-based FSS providing data communication and Internet services should be levied on a per MHz basis, should these charges be calculated based on:

- i. The Department of Telecommunications (DoT) order dated December 11, 2023, or**
- ii. An alternative approach (please specify)?**

Please provide a detailed justification to support your answer.

And

Q16. If it is decided that spectrum charges for NGSO-based FSS providing data communication and Internet services should be levied on a percentage of AGR basis:

- i. What should be the appropriate percentage of AGR?**
- ii. Should a minimum spectrum charge be specified to address the issue of inefficient utilization of spectrum? If yes, what methodology may be used to determine the amount of the minimum spectrum charge?**
- iii. Is there an alternative approach that could be followed to address the issue of inefficient spectrum utilization?**

Please provide a detailed justification for your answers.

And

Q17. Considering the Adjusted Gross Revenue (AGR) based charging methodology currently followed for Commercial VSAT and in view of the enhanced scope of the Satellite service authorisation, what should be the spectrum charge, as a percentage of AGR, that should be levied on GSO-based FSS? Or,

Should some alternative spectrum charging methodology be used for determining spectrum charges for GSO-based FSS?

Please provide a detailed justification for your answer.

And

Q18. Should spectrum charges for GSO and NGSO-based MSS that provide voice, text, data, and Internet services be levied:

- i. On a per MHz basis,**
- ii. On a percentage of AGR basis, or**
- iii. Through some other methodology?**

Please provide a detailed justification for your answer.

And

Q19. If it is determined that spectrum charges for GSO/NGSO-based MSS providing voice, text, data, and Internet services should be levied on a per MHz basis, should these charges be calculated based on:

- i. The Department of Telecommunications (DoT) order dated December 11, 2023, or**
- ii. An alternative approach (please specify)?**

Please provide a detailed justification to support your answer.

And

Q20. If it is decided that spectrum charges for GSO/NGSO-based MSS providing voice, text, data, and Internet services should be levied on a percentage of AGR basis:

- i. What should be the appropriate percentage?**
- ii. Should a minimum spectrum charge be specified to address the issue of inefficient utilization of spectrum? If yes, what methodology may be used to determine the amount of the minimum spectrum charge?**
- iii. Is there an alternative approach that could be followed to address the issue of inefficient spectrum utilization?**

Please provide a detailed justification for your answers.

And

Q21. Whether there are any other issues/suggestions relevant to the spectrum charging for:

- i. NGSO/GSO based FSS providing data communication and Internet services.**
- ii. NGSO/GSO based MSS providing voice, text, data, and Internet services.**

The response may be submitted with proper explanation and justification.

JSCL Response:

- 1. We reiterate **there cannot be two differing policy dispensations for two competing services** and transparent auction is the only legally tenable method of assignment of**

spectrum for all commercial communication services in India. The charging mechanism for satellite-based communications services should ensure complete parity in spectrum payouts including upfront charges, license fees, recurring charges etc. comparable to those applied to terrestrial communications services. This will prevent any undue advantage to incumbent global SatCom players and provide a level playing field.

2. Notwithstanding and without prejudice to our submission in case of administrative spectrum assignment, accurate spectrum valuation should be done on the basis of technical efficiency-based approximations derived from auction-determined price (ADP) of nearest bands like the mmWave band and C-Band spectrum.
3. Irrespective of the mode or formula for calculating annual spectrum charges of administrative assignment of spectrum, the outcome should be a constant i.e. equal to annual payout under deferred payment option for mmWave spectrum or C-Band spectrum as in case of terrestrial spectrum. This payout amount will also act as the minimum spectrum charge and act as an effective barrier against inefficient utilization of spectrum or spectrum hoarding issues.
4. Further, it is submitted that no case, the spectrum charge should be based on Adjusted Gross revenue (AGR), as AGR based spectrum charge is dependent on the tariff and the rollout of services by the operators without payment of any interest and is inefficient to say the least.