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Counter comments to submissions on the TRAI Consultation Paper on Assignment of Spectrum for Space-based Communication Services

Dear Sir:

Intelsat would like again to thank the Telecom Regulatory Authority of India (TRAI) for the opportunity to provide counter-comments on the Consultation Paper on Assignment of Spectrum for Space-based Communication Services (the “Consultation”). The following addresses some key arguments raised by some commenters.

1. Auctioning satellite spectrum does not serve the “common good” and is not required by the Supreme Court’s decision in the 2G case

Contrary to the claim of some commenters,¹ the Supreme Court has never ruled that satellite spectrum can be allocated only by auction. The *Centre for Public Interest Litigation and Ors. v. Union of India and Ors.* (the 2G Case)² was filed in the backdrop of allegations of corruption and arbitrary procedures for allocation of terrestrial spectrum. The current context of the Consultation is very different. At issue here is spectrum for satellite use, which as we have demonstrated at length, in our Comments, is not meant for exclusive use and thus is not feasible to auction. It would be an absurdity to impose the Supreme Court’s ruling in a completely different context to the current proceeding.

In a follow-up proceeding to the 2G case, the Supreme Court further clarified that the recommendation of auction was never intended to be an absolute or blanket statement applicable across all natural resources.³ As per the Reference:

“the choice of the word ‘perhaps’ suggests that the Court considered situations requiring a method other than auction as conceivable and desirable.”

¹ See e.g., RJIO comments at para. 27, Telecom User Association comments at page 3, Vodafone Idea comments at p. 20.

² WP (C) No. 423 of 2010.

³ Para 7.1 of the WP (C) No. 423 of 2010.

The Supreme Court, while providing its observations in the Reference, stressed that allocation of natural resources to the highest bidder may not necessarily be the only way to serve the common good and, at times, may run counter to the public good.⁴ More specifically, Article 39(b) of the Constitution grants the power and responsibility to the State to allocate and distribute resources in consideration of the public good. The Supreme Court held that “distribution”, as envisaged under Article 39(b) has broad contours, and cannot be limited to meaning only a singular method of resource disposal i.e., auction. As allocation of resources is primarily intended towards serving public interest and the “common good”, it cannot *ipso facto* be interpreted that auction represents the best method for allocation.⁵ Lastly, the Supreme Court also suggested that the potential for abuse in other resource allocation methods could not be the basis for considering auctions as a legal/ constitutional mandate, as there was an equal potential for abuse in an auction.

Intelsat reiterates that allocation of spectrum for satellite-based communication services must not be conducted by way of auction, in order to cater to the “common good” and serve the public’s interest at large. Proceeding to satellite spectrum auctions will introduce artificial scarcity, restrict competition, reduce the amount of spectrum that would otherwise be available when sharing and result in market failure at the expense of the consumer. As the DoT has reiterated, satellite services are important for provision of broadband communication services to rural and inaccessible areas, and to achieve greater social, economic, and technological progress for the country.⁶ Any restriction to the expansion and innovation of the satellite market will hinder the ability to offer affordable services to consumers and exacerbate the digital divide.

2. The “Same Service, Same Rules” principle does not apply to satellite spectrum allocation

Reliance, and other commenters,⁷ have further relied upon the principle of “same service, same rules” to advocate for auction assignment for terrestrial and satellite services alike, to ensure multi-technology growth in the telecom and satellite industry. Further, the representation anticipates that such satellite communication service providers will seek to compete with terrestrial networks for market share and must accordingly be bound by similar licensing and regulatory requirements.

It is pertinent to note that the principle has been brought up for discussions by TRAI repeatedly since 2006 (for regulation of telecom and OTT industry) and has typically not received much favor from the wider industry, in light of the developing and budding telecommunication, broadcasting and satellite sectors in India.

⁴ Para 4.10 and 4.11 of the WP (C) No. 423 of 2010.

⁵ Para 4.13 of the WP (C) No. 423 of 2010.

⁶ Page 8-11, Satellite Communication Reforms 2022, released by the Department of Telecommunications; accessible at: <https://dot.gov.in/sites/default/files/Satelite%20Reforms%202022.pdf>

⁷ RJIO comments at Section F, Asianet comments at para. 4, Vodafone Idea comments at page 20-21, ICT Robot comments at para 15.

In reference to the telecom vs. OTT debate, the industry has relied upon the technological differences of delivery between the 2 industries, and the differences in their commercial strength, to maintain a differential licensing and regulatory regime for the two industries, regardless of the similar service being provided by the industries. Intelsat reiterates below the major differences between satellite and terrestrial services, that argue against applying the “same service, same rules” principle with respect to auctioning satellite spectrum:

- i. Satellite spectrum is a shared resource which permits efficient sharing among multiple operators. Mobile services rely on exclusive use of spectrum.
- ii. Satellite spectrum has no national territorial limits. It is coordinated and managed by the International Telecommunications Union (ITU) through a global convention which is signed by 194 nations, to which India is also a signatory. Unlike terrestrial spectrum, satellite spectrum is coordinated internationally and shared among multiple operators for different orbital slots and all types of satellites.
- iii. Mobile services primarily focus on densely populated areas with a large number of subscribers, justifying the high costs of spectrum and infrastructure. Satellite services target the provision of connectivity to rural and underserved areas and are akin to social welfare services and need to be nurtured, protected, and fostered in the public interest. Auction would escalate spectrum prices, and thereby increase the cost of service. This will be against public interest and severely impact socio-economic welfare.

3. Claims that satellite spectrum cannot be shared are easily refuted

Some commenters⁸ argued against the feasibility of satellite spectrum sharing and that exclusivity of satellite spectrum should be preferred. The commenters also argued that “*due to the widespread geographic distribution of (satellite) user terminals, it would be infeasible for terminals deployed by different service providers to operate on the same frequency*”.⁹ Such statements are profoundly false and are readily refuted by the thousands of operational satellites that share spectrum. As a matter of principle, satellite operations in spectrum allocated to the fixed satellite service (FSS) and broadcast satellite service (BSS) is predicated on the principle of spectrum sharing. In fact, a significant part of the ITU Radio Regulations is dedicated to technical rules about spectrum sharing among satellites.¹⁰ Geostationary Orbit networks (GSO) and Non-Geostationary Satellite Orbit systems (NGSO) networks can efficiently and harmoniously coexist within the same frequency bands and geography. Frequency coordination meetings are extremely common among satellite operators from around the world. India, as a satellite-faring nation, has a long experience in how spectrum sharing works in satellite communications. The argument of

⁸ RJIO comments at para.6, 7 and 15, Asianet comments at para. 12, Telecom User Association comments at page 3.

⁹ RJIO comments at para.15.

¹⁰ ITU Radio Regulations Appendix 30B.

infeasibility of sharing among satellite operators is therefore voided by the current state of global satellite operations.

As a counter argument to satellite spectrum sharing, respondents argued that a pragmatic approach is to divide the spectrum into smaller portions and assign them for the exclusive use of service providers. Such proposal demonstrates a profound lack of understanding of satellite communications on multiple levels. Understanding of satellite technology and how it works is the cornerstone for developing the right regulatory frameworks. As demonstrated above, satellites that operate in spectrum allocated to FSS and BSS are *designed* to share spectrum, so spectrum segmentation is *not* needed. In fact, such segmentation will result in severe inefficiencies that would ultimately undermine the very economics of satellite communications by fragmenting and decimating spectrum allocations. As we mentioned in our Comments, this spectrum segmentation would unnecessarily limit the number of satellite operators sharing the spectrum and reduce the spectrum available to each user. As a result, the benefits of non-rivalrous spectrum use would be lost, as the sharing of frequencies between operators is what enables satellite operators to provide high bandwidth capacity in a given area.

4. References to “successful” international auctions are misplaced

Reliance Jio¹¹ mentioned that there were successful examples of satellite spectrum auctions, referring to Thailand and Saudi Arabia. However, such reference to “success” is erroneous, and perhaps, disingenuous. As mentioned in our comments, Thailand tried to auction satellite spectrum in 2021 but the auction was ultimately cancelled as there was only one bidder. Thailand has since decided to revert to assigning satellite spectrum administratively.

As for Saudi Arabia, it indeed ran an auction, but that auction was for spectrum allocated to the mobile satellite service (MSS). MSS shares many characteristics with mobile service (MS) in that both rely on exclusive spectrum use within a certain geographic area. Therefore, it is not uncommon for regulators to assign MSS spectrum by auction or by beauty contest to identify a single winner at the end of such process. The same cannot be applied to FSS or BSS spectrum because, as explained before, both services are *designed* to operate in shared spectrum and, therefore, auctions will not work because of lack of scarcity. By and large, satellite spectrum is granted administratively, and in certain instances, is exempted from licensing.¹² As no other jurisdiction has successfully implemented satellite spectrum auctions demonstrating the infeasibility of such mechanism. India will face a great challenge in designing a spectrum auction mechanism that does not reduce the value of satellite spectrum and restrict market competition. Participating in an auction for non-rivalrous spectrum use would also prove difficult for bidders. Owing to the lack of scarcity, the value of the spectrum would be difficult to measure. This uncertainty would make it challenging for bidders to determine their willingness to pay and formulate a bid strategy. If the bidders were unable to accurately predict the value of the spectrum

¹¹ RJIO comments at para 19.

¹² In CEPT, the implementation of ECC decision has led to unlicensed use of some user terminals in the Ku and Ka band (VSAT, ESIMs).

or if the auction failed to attract enough bidders owing to this uncertainty, the auction could fail. Situations like these are further likely to result in a ‘free rider’ problem, in which individual users can benefit from a shared resource without paying for its use. In other words, they can ‘free ride’ on the efforts of others without paying their fair share. This can lead to an inefficient auction outcome where the spectrum is not sold for its true value, or it may not be sold at all.

5. Auctions may provide investment certainty if spectrum is used exclusively, but not for shared spectrum

Some of the comments¹³ falsely argue that the auction method offers a transparent approach for allocating spectrum resources and appeals to investors due to the long-term certainty in spectrum assignments. Such an approach is indeed suitable in cases where exclusive use of spectrum is required, such as in terrestrial mobile. However, applications that rely on shared spectrum do not benefit from exclusive rights derived from auctions. Auctions do not really create the desired type of certainty for shared spectrum applications. In fact, for such applications, regulatory certainty is achieved by establishing clear technical rules for sharing and by creating regulatory frameworks that are consistent with best practices followed around the world, particularly when it comes to licensing and fees.

The economies of scale for applications that rely on shared spectrum are predicated on ubiquity and unfragmented spectrum. Consequently, adopting an auction-based approach for allocating spectrum that can be shared between satellite operators, such as the C/Ku/Ka bands, would result in unnecessary fragmentation and inefficient spectrum utilization. Auctions, therefore, will undermine these economics by significantly increasing the upfront deployment and operational costs for satellite networks and by the fragmentation of spectrum access. The administrative approach for shared access to the bands prevents unsold spectrum and allows new satellite players to deploy services under compliance with technical conditions and through coordination with existing users and services.

The uncertainty is further exacerbated by the fact that satellite operators may need access to both user and gateway spectrum in order to deploy services. If the mechanism of spectrum auctions is introduced, an operator may face a situation where they are able to obtain access to only the user or the gateway spectrum, without getting access to both, which would therefore restrict the operator’s ability to deploy the services. Lastly, the same uncertainty is faced in case of capacity expansion, as an operator will need to be part to a bidding process every time they want to expand their capacity to accommodate demand.

¹³ RJIO comments at para 20, DEN Broadband comment reply on question 8.

6. Auctions of satellite spectrum will result in market failure and exacerbate further the digital divide

Reliance erroneously argue that exclusive satellite spectrum will ultimately benefit end users.¹⁴ However, as we demonstrated above and in our initial comments, any plausible design for an auction for satellite spectrum above 3 GHz would result in market failure, meaning an inefficient allocation, reduced service availability and less competition, by creating “gatekeepers” of the satellite spectrum. The artificial scarcity and reduced competition will result in higher consumer prices. Forcing a competitive auction mechanism to an industry that operates on a shared and competitive basis will also lead to less market incentives and to less innovation, as the “winners” may be less incentivized to innovate for competition. A situation of market failure in which valuable satellite is inefficiently used will exacerbate the digital divide.

Reliance further argues that satellite auctions will ensure a fair, transparent allocation process and promote efficient use of a precious resource. For this to be the case, it is necessary that competing bidders are on a level playing field and that the bids from all bidders be broadly reflective of the value that the downstream services will contribute to society. There is no reason to believe that this would be the case if satellite and mobile had to compete directly access to spectrum. Moreover, for auctions to deliver efficient outcomes, it must be possible to package the spectrum for sale in a way that corresponds to the use cases of the competing parties. This is impossible for the Ku and Ka bands (or any FSS or BSS band for that matter), where satellites work on a shared use basis while mobile requires exclusive use. There is no good auction mechanism that could efficiently aggregate the demand of many shared users in a way that would allow them to reflect their full value if competing against licensees seeking exclusive spectrum.

7. Section 11(1)(a) authorizes TRAI, as the sectoral regulator, to recommend administrative allocation of satellite spectrum

One of the commenters argues that TRAI lacks authority to make a recommendation on administrative allocation of spectrum because “*TRAI was requested to provide its recommendations only with respect to auction.*”¹⁵

In this regard, it is pertinent to note that the reference made by the DoT is for the purpose of seeking inputs from the TRAI on allocation of satellite spectrum. While the reference does use the term “auction”, however, there is no limitation prescribed in the reference that restricts the TRAI to limit its recommendations only to auctions.

In this regard, it is pertinent to note that Section 11(1)(a) reads thus:

Notwithstanding anything contained in the Indian Telegraph Act, 1885 (13 of 1885), the functions of the Authority shall be to—

¹⁴ Myth 6, RJIO comments at para. 18.

¹⁵ RJIL comments at p.43.

(a) make recommendations, either suo motu or on a request from the licensor, on the following matters, namely:

...

(ii) terms and conditions of licence to a service provider;

(iv) measures to facilitate competition and promote efficiency in the operation of telecommunication services so as to facilitate growth in such services;

(viii) efficient management of available spectrum;

Thus, as the sectoral regulator and the expert body, the TRAI's recommendatory function has been accorded statutory force and the importance of such a function is underscored by the *non-obstante* clause in the beginning of Section 11(1). Secondly, while giving recommendations, the TRAI has to be mindful of the underlying objective of the TRAI Act as also the specific functions that it discharges in that context, including those highlighted above.

It is also noteworthy that the communications from the DoT to the TRAI categorically record that the current dispensation for spectrum management is administrative allocation. Thus, in our view the TRAI would be remiss in not addressing the aspect of alternative options for allocation of satellite spectrum, while responding to the query from the DoT to give recommendations in this regard.

8. The proposed non-exclusionary auction mechanism is unnecessary and futile

Although SpaceX oppose the use of auctions for satellite spectrum, they suggest an alternative, i.e., a non-exclusionary auction. Their objective is *“to find a potential design for a non-exclusionary auction mechanism that attempts to satisfy the fundamental operating requirements of next-generation satellite systems while balancing the largest number of public policy goals.”*¹⁶

We agree with SpaceX, however, that it is impossible to *“identify any design that does not have the critical flaw of artificially reducing competition by foreclosing access to shared spectrum, and needlessly restricting access for some operators in order to make the auction mechanism function.”* In short, any auction of satellite spectrum will be an inferior option when compared to the existing administrative allocation mechanism. That said, the SpaceX design is indeed preferable to the auction mechanisms proposed by the Consultation, as it would allocate spectrum to multiple shared users, rather than allocate exclusive rights, which – as we have already argued – would be inefficient and wasteful. If the number of shared users permitted was set sufficiently large, then the inefficiency may be avoided. However, in that case the non-exclusionary auction will introduce complex and burdensome procedures with no different outcome than the administrative allocation mechanism.

¹⁶ SpaceX comments, p.15-16.



We are aware of one precedent for an auction similar to the described non-exclusionary mechanism. The UK GSM/DECT guard band auction (2006) used a second price combinatorial sealed bid to determine the number and identity of users that would share low-power spectrum.¹⁷ Such auction mechanism was established as for Ofcom to intervene and require all participating bidders to commit upfront to use the spectrum in compatible ways and abide by the sharing rules. The auction outcome established that users could manage coordination better amongst larger numbers of operators than Ofcom. Moreover, as explained above, the satellite industry has established processes for coordination and years of successful implementation of such processes. There is no need for regulatory intervention through an auction mechanism to ensure compliance with coordination and spectrum sharing rules.

We remain at your availability for any supplementary information.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Hazem Moakkit", written over a horizontal line.

Hazem Moakkit

Vice President, Spectrum Strategy

¹⁷ More information is available at: <https://www.ofcom.org.uk/spectrum/spectrum-management/spectrum-awards>, under "Awards that have already taken place".