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Subject: MAIT inputs on TRAI “Consultation Paper on Assignment of Spectrum for Space-based Communication Services” Consultation Paper No.6/2023

Respected Sir,

Greetings from MAIT!

At the outset, we thank you for the opportunity to provide our inputs on the topics and questions being raised in the TRAI’s Consultation Paper on Assignment of Spectrum for Space-based Communication Services.

We are responding to the TRAI consultation in general and specifically touching Q15 in the consultation paper:

Q. 15 What should be the methodology for assignment of spectrum for user links for space-based communication services in L-band and S-band, such as:

- (a) Auction-based**
- (b) Administrative**
- (c) Any other?**

Please provide your response with detailed justification.

Auctions are generally used to allocate scarce resources amongst parties that have an equal claim to those resources and the auctioning administration has exclusive control of the spectrum being auctioned. Terrestrial mobile frequencies are the most commonly auctioned frequencies. Since these spectrum rights are under the exclusive control of a single administration and the applicants derive their potential rights exclusively from the auction, this type of licensing can take place on an exclusively national basis.

In the case of satellites, however, this is not necessarily the case since satellite frequency assignments are coordinated on an international basis through the ITU. If a filing covers only a single country and is filed by that same administration, it is possible for that administration to assign use of that satellite filing through an auction process. Brazil and the United States auctioned national satellite authorizations in the past but both countries have since abandoned this policy because of its negative effects on spectrum efficiency and end-user cost. Virtually all such experiments in the world have been abandoned and the practice of auctioning satellite spectrum and replacing it with the globally adopted administrative process.¹

For frequency bands that are used primarily by non-GSO satellite systems, however, auctions are impractical. While a non-GSO satellite filing may include India in its coverage area, it is likely that the filing belongs to another administration. Unless there is a more senior Indian filing in this band,

¹ <https://telecom.economicstimes.indiatimes.com/tele-talk/busting-the-myth-of-satellite-spectrum-auctions/5208?redirect=1>

India would be faced with the choice of either disregarding the filing's ITU priority or forcing the transfer of the filing to India as a condition of market access. Since filings belong to administrations and not the prospective satellite operator, this is unlikely to happen.

Governments, media, industry, first responders and consumers across the world rely on satellite networks to provide primary and backup communications for essential business transactions, operational missions and mass communications. During emergencies, satellite-based communications are heavily relied upon by first responders when terrestrial communications are disrupted.

Satellite Spectrum is Not Suitable for Auctions² due to the following reasons.

- Satellite companies rely on consistent spectrum policies to design and invest in space-based networks. Because the lifetime of a satellite is typically 12-15 years, the sector is particularly disadvantaged by short-term fluctuations in regulatory or spectrum policies that disrupt the intended use of these systems.
- Satellites operate in an inherently international environment, both in terms of their orbital position in space and their coverage areas, making any major spectrum policy shift on the part of an individual country vastly more complex.
- Satellite spectrum allocations require both considerable international approvals by the International Telecommunication Union (ITU) and intensive coordination of the spectrum of adjacent satellite operators, often between a country and foreign regulators
- Imposing new auctions for satellite spectrum would in effect disadvantage Indian satellite licensees vis-à-vis foreign-licensed satellite systems that serve the Indian market in contravention of other Indian policy objectives.

Additionally,³

- Foreign regulatory agencies and policymakers will look at the Indian example as a precedent for their treatment of satellite operators and satellite services. As a result, Indian decisions may be adopted as regional or international practices, regardless of applicability and with far greater impact than originally contemplated domestically.
- If spectrum fees or auctions were replicated in numerous countries, the cumulative financial burden placed on international satellite operators would threaten the viability of the sector's overall business models and ultimately reduce investment, innovation and service quality.
- Spectrum for satellite use is qualitatively different from spectrum for terrestrial use owing to the ITU regulatory framework for their assignment and coordination and the typical lack of exclusivity associated with the use of spectrum for satellite services. It is common for multiple GEO and non-GEO satellites to be authorized to use the same spectrum simultaneously under the ITU framework enabling efficient use of the radio spectrum resource. Introducing exclusivity through auctions would be inefficient and unnecessary for the management of satellite spectrum and would preclude satellite systems from sharing spectrum among themselves.

For these reasons, MAIT believes that appropriate administrative methods - and not auctions - should be used to license satellite spectrum in compliance with international rules.

Questions 38, 45, 46

Special Considerations Applicable for Provision of Service to Unserved Areas

The following comments provide information relevant to consultation **questions 38, 45, 46**

² https://sia.org/wp-content/uploads/2019/12/SIA_Spectrum_Fee_and_Auction_Position_Paper_2013_FINAL.pdf

³ <https://gsoasatellite.com/wp-content/uploads/2022-01-24-GSOA-Counter-Comments-TRAI-5G-Auction-Consultation.pdf>

In Paragraph 3.89, TRAI recognizes that:

some service licensees may be interested in providing satellite communication services only in the telecom circles with tough terrains, remote locations, far-flung areas of the country, etc. Therefore, a question arises as to whether spectrum for satellite-based user links should be assigned on a national basis or telecom circle/metro level as applicable for Access services.

TRAI has a long-standing policy of encouraging expansion of telecommunication services to rural and unserved areas. Most of these areas remain unserved by terrestrial networks due to the challenging economics of providing service using terrestrial technology. Recent developments in Direct-to-Device communications, such as Apple's Emergency SOS via Satellite feature on the iPhone 14, provide a unique solution for enabling important communications in these unserved areas. Other OEMs and providers are also coming up with satellite services for mobile users in other countries. At CES 2023, Qualcomm debuted Snapdragon Satellite, a service that uses orbital communication company Iridium's constellation of 66 satellites to relay emergency texts and data and eventually non-emergency two-way texting. T-Mobile has partnered with SpaceX to use its existing Starlink cluster of microsatsellites for out-of-network emergency texting. Verizon is working with Amazon's Project Kuiper, which aims to use a microsatellite cluster like Starlink for emergency messaging and potentially to supplement its 4G and 5G mobile network.

AT&T had partnered with satellite communications company OneWeb for limited business connections, last fall the carrier signed its own agreement with AST SpaceMobile to augment its mobile network and help regular customers connect via satellite⁴.

Direct-to-device communications via satellite are designed to provide services in areas that are not covered by terrestrial networks due to economic or geographic challenges. Any licensing regime for direct-to-device services should encourage this expansion of connectivity. Apple currently provides the Emergency SOS via Satellite feature at no cost to iPhone customers in the countries where it is authorized. Apple and other providers are able to do this because of the minimal licensing requirements for MSS services that exist in the countries where this feature is available. Depriving this innovative technology offering to Indian mobile users will leave out a segment of consumers that need this service.

Spectrum fees associated with the administration's cost of managing the spectrum are widely used by regulators worldwide and are also the basis of satellite filing fees at the ITU.

We are hopeful that our request on the subject matter would be addressed in a positive manner by your good office.

Warm regards,



Col. AA Jafri, Retd.
Director General

⁴ <https://www.cnet.com/tech/mobile/iphone-satellite-texting-like-capability-is-coming-to-android-in-2023/>