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We are thankful to the Authority for bringing out this well-awaited Consultation Paper. The following are our response and comments:

The government after thorough analysis had taken a policy decision to auction of spectrum for satellite communication services and accordingly, a reference was sent to TRAI for obtaining its recommendations.

The Terms of Reference to TRAI were to auction spectrum in different bands that were earmarked for satellite communication services and TRAI is supposed to give its recommendations with reference to ToR only. We do not understand, why the authority has dealt at length, with whether the spectrum for space-based applications be auctioned or any other method/ continue the present practice to assign spectrum without auctions, and the questions in the consultation paper were framed accordingly.

Further,

1. With technological development, now it is possible to provide communication services using both terrestrial and satellite services to the masses in an affordable manner, leaving only a few locations where terrestrial and satellite communication services are not complimentary. For such rural and inaccessible areas, we have the provision of support from USO fund.
2. Terrestrial and satellite technologies are merging to provide ubiquitous connectivity. In the technology natural regime, for the same market, in the same service area, for similar/ same type of services, there cannot be two different laws/ rules and regulations etc for different technologies used.
3. For National sovereignty and security of the country, 100% control of all communications systems, particularly dual-use technologies/systems is a must. Since the space segment of foreign satellite systems and their contract with different defense/spy agencies cannot be verified by concerned Indian agencies, national security issues must be made a cardinal point before granting license/use of any spectrum foreign registered space systems.
4. A verifiable space segment owned and controlled by the Indian administration must be promoted and it is necessary to make sure that Indian Companies get similar market access in other countries as well.

Following are the response to the questions put for response:

CHAPTER- V: ISSUES FOR CONSULTATION

Q1. For space-based communication services, what are the appropriate frequency bands for (a) gateway links and (b) user links, that should be considered under this consultation process for different types of licensed telecommunications and broadcasting services? Kindly justify your response with relevant details.

Answer: With fast technological development, now, it is possible to use free space optical communication systems for inter-satellite links (instead of microwave links) and very soon, it will be possible to use earth-to-satellite and satellite-to-earth, optical communication links also. Further, there is a lot of microwave spectrum that can never be used on Earth due to gaseous absorption but can be effectively used in outer space. In the public interest, TRAI may like to recommend to the Government to get conducted, unbiased technical studies, and take appropriate measures to make satellite communication systems adopt state-of-the-art technologies and release appropriate spectrum for terrestrial applications, over a period of the next 7-10 years. Indian Administration may take the lead for necessary changes in ITU Radio Regulations and make available such spectrum for R&D and new IPR and product development.

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Q2. What quantum of spectrum for (a) gateway links and (b) user links in the appropriate frequency bands is required to meet the demand of space-based communication services? Information on present demand and likely demand after about five years may kindly be provided in two separate tables as per the proforma given below:

Answer: As responded above.

It will be good to conduct spectrum audit, which means how much spectrum got allocated for satellite services and how much is in actual use (not simply filed with ITU R). It will be good for the authority to conduct its own satellite capacity demand for estimation for different services in different parts of the country.

TRAI may also like to coordinate with ISRO/ InSpace to ascertain which services are essential for the country and how much time they will be in a position to provide Indian space capacity. This will help in forecasting demand and duration for which foreign space capacity would be required to be leased.

Only the necessary quantum of spectrum for use, based on the market demand study (suggest TRAI get it conducted such a study with the help of ISRO and TSPs), must be auctioned.

Q3. Whether there is any practical limit on the number of Non-Geo Stationary Orbit (NGSO) satellite systems in Low Earth Orbit (LEO) and Medium Earth Orbit (MEO), which can work in a coordinated manner on an equitable basis using the same frequency range? Kindly justify your response.

Answer: FCC has approved a maximum number of NGSO systems and had well-defined rules for sharing/reporting and spectrum fragmentation in case interference increases beyond a limit for some time. We may provide market access to a limited number of LEO/MEO operators that satisfy our national security conditions.

Q4. For space-based communication services, whether frequency spectrum in higher bands such as C band, Ku band and Ka band, should be assigned to licensees on an exclusive basis? Kindly justify your response. Do you foresee any challenges due to exclusive assignment? If yes, in what manner can the challenges be overcome? Kindly elaborate the challenges and the ways to overcome them.

Answer: We are in an era of convergence and a market-driven economy in a technology-neutral regime. Fast technological development has made it possible to extensively use the microwave spectrum for terrestrial applications. In the next 7-10 years satellite systems will use all optical links (since the actual operational life of GSO and NGSO satellite systems are about 12 and 5 years respectively, the new/replacement satellites will use advanced communications systems). A large part of the microwave spectrum can be used by both terrestrial and satellite applications (with due regulatory mechanism), and hence it will be good to assess the country's communications requirements and go for non-exclusive auctions.

The return of and reforming of microwave spectrum used by the satellite industry must be incentivized, to make available more spectrum for R&D, new product development, and help the Indian satellite industry to develop and use all optical links/ constellations.

Q5. In case it is decided to assign spectrum in higher frequency bands such as C band, Ku band and Ka band for space-based communication services to licensees on an exclusive basis,

(a) What should be the block size, minimum number of blocks for bidding and spectrum cap per bidder? Response may be provided separately for each spectrum band.

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(b) Whether intra-band sharing of frequency spectrum with other satellite communication service providers holding spectrum up to the prescribed spectrum cap, needs to be mandated?

Answer: Just go for spectrum auctions, no assignment, please. Auctions will bring spectrum efficiency.

(c) Whether a framework for mandatory spectrum sharing needs to be prescribed? If yes, kindly suggest a broad framework and the elements to be included in the guidelines.

Answer: Please take reference from FCC documents.

(d) Any other suggestions to ensure that the satellite communication ecosystem is not adversely impacted due to exclusive spectrum assignment, may kindly be made with detailed justification. Kindly justify your response.

Answer: No comment

Q6. What provisions should be made applicable on any new entrant or any entity who could not acquire spectrum in the auction process/assignment cycle?

Answer: please refer to FCC documents on the subject

(a) Whether such entity should take part in the next auction/ assignment cycle after expiry of the validity period of the assigned spectrum? If yes, what should be the validity period of the auctioned/assigned spectrum?

Answer: it's a highly futuristic question. Evolving technology will provide the way forward.

(b) Whether spectrum acquired through auction be permitted to be shared with any entity which does not hold spectrum/ or has not been successful in auction in the said band? If yes, what measures should be taken to ensure rationale of spectrum auction and to avoid adverse impact on the dynamics of the spectrum auction?

Answer: Yes. To get the best out of auctioned spectrum it is necessary that such spectrum must be allowed to be used for different satellite and terrestrial communication applications, by following a well-defined regulatory framework (based on coexistence studies using state-of-the-art technological parameters) on a coexistence basis with the knowledge of Indian Administration.

(c) In case an auction based on exclusive assignment is held in a spectrum band, whether the same spectrum may again be put to auction after certain number of years to any new entrant including the entities which could not acquire spectrum in the previous auction? If yes,

(i) After how many years the same spectrum band should be put to auction for the potential bidders?

Answer: Technological developments will provide answer. The operational life of GSO and LEO is 12 and 5 years only.

(ii) What should be the validity of spectrum for the first conducted auction in a band? Whether the validity period for the subsequent auctions in that band should be co-terminus with the validity period of the first held auction? Kindly justify your response.

Answer: The useful operational life of the satellite is limited (12 and 5 years for GSO and LEO satellite systems respectively) and new satellites do use state-of-the-art technology. Hence the license to use spectrum maybe 12 years for GSO and 5-7 years for LEO. Before re-auction of such spectrum, the technological advancements and need of the spectrum must be taken into consideration.

Q7. Whether any entity which acquired the satellite spectrum through auction/assignment should be permitted to trade and/or lease their partial or entire satellite spectrum holding to other eligible service licensees, including the licensees which do not hold any spectrum in the concerned spectrum band? If yes, what measures should be taken to ensure rationale of spectrum auction and to avoid adverse impact on the dynamics of the spectrum auction? Kindly justify your response.

Answer: No. This will provide back door entry and profiteering.

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Q8. For the existing service licensees providing space-based communication services, whether there is a need to create enabling provisions for assignment of the currently held spectrum frequency range by them, such that if the service licensee is successful in acquiring required quantum of spectrum through auction/ assignment cycle in the relevant band, its services are not disrupted? If yes, what mechanism should be prescribed? Kindly justify your response.

Answer: Government must audit the actual uses of such assignments made in the last 20-25 years. The excess spectrum must be taken back. Satellite operators must pay market-driven prices for the remains period of the license.

Q9. In case you are of the opinion that the frequency spectrum in higher frequency bands such as C band, Ku band and Ka band for spacebased communication services should be assigned on shared (nonexclusive) basis, -

(a) Whether a broad framework for sharing of frequency spectrum among satellite communication service providers needs to be prescribed or it should be left to mutual coordination? In case you are of the opinion that broad framework should be prescribed, kindly suggest the framework and elements to be included in such a framework

Answer: Assignment to be made by auction only. Sharing should be made mandatory on a non-discriminatory manner. In case of any problem, regularly mechanisms may be used.

(b) Any other suggestions may kindly be made with detailed justification. Kindly justify your response.

Answer: As suggested above.

Q10. In the frequency range 27.5-28.5 GHz, whether the spectrum assignee should be permitted to utilize the frequency spectrum for IMT services as well as space-based communication services, in a flexible manner? Do you foresee any challenges arising out of such flexible use? If yes, in what manner can the challenges be overcome? Kindly elaborate the challenges and the ways to overcome them.

Answer: Understand group of secretaries, after thorough technical analysis, involving all the user agencies, had allocated 27.5 to 28.5 GHz for use by 5G services (as Indian Satellite systems do not use and have plans to use this spectrum). This spectrum must be auctioned for terrestrial service providers for terrestrial 5g services. TSPs may be allowed to use this spectrum for extending their services in licensed areas, using the Indian Satellite system (including Indian Space Segment).

Q11. In case it is decided to permit flexible use in the frequency range of 27.5 - 28.5 GHz for space-based communication services and IMT services, what should be the associated terms and conditions including eligibility conditions for such assignment of spectrum? Kindly justify your response.

Answer: As responded in Q 10.

Q12. Whether there is a requirement for permitting flexible use between CNPN and space-based communication services in the frequency range 28.5-29.5 GHz? Kindly justify your response.

Answer: Yes. It is necessary to look at our national requirements. For the efficient use of the spectrum, 28.5- 29.5 flexible use may be allowed.

Q13. Do you foresee any challenges in case the spectrum assignee is permitted to utilize the frequency spectrum in the range 28.5-29.5 GHz for cellular based CNPN as well as space-based communication services, in a flexible manner? What could be the measures to mitigate such challenges? Suggestions may kindly be made with justification.

Answer: We don't foresee any challenges. There are good studies on interference mitigation techniques. Moreover, TRAI/Indian Administration must audit actual uses and real requirements of 28.5 to 29.5 GHz spectrum over India. We understand that an unbiased study taking into consideration parameters of state-of-the-art radio systems used in satellites and terrestrial systems will reveal a huge margin for coexistence.

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Q14. Whether space-based communication services should be categorized into different classes of services requiring different treatment for spectrum assignment? If yes, what should be the classification of services and which type of services should fall under each class of service? Kindly justify your response. Please provide the following details:

a) Service provider-wise details regarding financial and market parameters such as total revenue, total subscriber base, total capital expenditure etc. for each type of service (as mentioned in the Table 1.3 of this consultation paper) for the financial year 2018-19, 2019-20, 2020-21, 2021-22, and 2022-23 in the format

given below:

Type of service: _____ Financial Year Revenue (Rs. lakh) Subscriber base

CAPEX for the year (Rs. lakh) Depreciation for the year (Rs. lakh) 2018-19, 2019-20, 2020-21, 2021-22, 2022-23

b) Projections on revenue, subscriber base and capital expenditure for each type of service (as mentioned in the Table 1.3 of this consultation paper) for the whole industry for the next five years starting from financial year 2023-24, in the format given below:

Type of service: _____, Financial, Year Revenue (Rs. lakh), Subscriber base CAPEX for the year

(Rs. lakh), 2023-24, 2024-25, 2025-26, 2026-27, 2027-28

Answer: Not at all. Let's auction spectrum after looking at the requisite space capacity for India (primarily to be catered by Indian space assets and let market forces play) in the next couple of years. Spectrum management is a dynamic process and the administrator must have flexibility to cater to emerging new technologies and national requirements. Locking and hoarding the spectrum for any particular use is an obsolete approach, why not to go for a dynamic spectrum auction approach with well defined regulatory and technical framework?

Q15. 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.

Answer: Auction is the only solution.

Q16. What should be the methodology for assignment of spectrum for user links for space-based communication services in higher spectrum bands like C-band, Ku-band and Ka-band, such as

(a) Auction-based

(b) Administrative

(c) Any other?

Please provide your response in respect of different types of services

(As mentioned in Table 1.3 of this consultation paper). Please support your response with detailed justification.

Answer: Government reference is for auctions only. There is no reason to ask for an administrative assignment.

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Q17. Whether spectrum for user links should be assigned at the national level, or telecom circle/ metro-wise? Kindly justify your response.

Answer: location-based only, to bring spectral efficiency by multiple uses by different services all over the country.

Q18. In case it is decided to auction user link frequency spectrum for different types of services, should separate auctions be conducted for each type of services? Kindly justify your response with detailed methodology.

Answer: All spectrum, irrespective of application/ service must be auctioned.

Q19. What should be the methodology for assignment of spectrum for gateway links for space-based communication services, such as

(a) Auction-based

(b) Administrative

(c) Any other?

Please provide your response in respect of different types of services.

Please support your response with detailed justification.

Answer: All spectrum, irrespective of application/ service must be auctioned.

Q20. In case it is decided to auction gateway link frequency spectrum for different types of services, should separate auctions be conducted for each type of services? Kindly justify your response with detailed methodology.

Answer: As answered earlier.

Q21. In case it is decided to assign frequency spectrum for space-based communication services through auction,

(a) What should be the validity period of the auctioned spectrum?

(b) What should be the periodicity of the auction for any unsold/ available spectrum?

(c) Whether some mechanism needs to be put in place to permit the service licensee to shift to another satellite system and to change the frequency spectrum within a frequency band (such as Ka band, Ku-band, etc.) or across frequency bands for the remaining validity period of the spectrum held by it? If yes, what process should be adopted and whether some fee should be charged for this purpose? Kindly justify your response.

Answer: The useful operational life of the satellite is limited (12 and 5 years for GSO and LEO satellite systems respectively) and new satellites do use state-of-the-art technology. Hence the license to use spectrum maybe 12 years for GSO and 5-7 years for LEO. Before the re-auction of such a spectrum, the technological advancements and need of the spectrum must be taken into consideration.

Q22. Considering that (a) space-based communication services require spectrum in both user link as well as gateway link, (b) use of frequency spectrum for different types of links may be different for different satellite systems, and (c) requirement of frequency spectrum may also vary depending on the services being envisaged to be provided, which of the following would be appropriate:

(i) to assign spectrum for gateway links and user links separately to give flexibility to the stakeholders? In case your response is in the affirmative, what mechanism should be adopted such that the successful bidder gets spectrum for user links as well as gateway links.

or

(ii) to assign spectrum for gateway links and user links in a bundled manner, such that the successful bidder gets spectrum for user link as well as gateway link? In case your response is in the affirmative, kindly suggest appropriate assignment methodology, including auction so that the successful bidder gets spectrum for user links as well as gateway links.

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Answer: Spectrum is to be allocated for efficient and optimum utilization, not for hoarding. It will be good to auction spectrum in such a manner that different telecom services can use the same spectrum without impacting each other's operation. In case interference is actually observed, a regulatory mechanism may be applied.

Q23. Whether any protection distance would be required around the satellite earth station gateway to avoid interference from other satellite earth station gateways for GSO/ NGSO satellites using the same frequency band? If yes, what would be the protection distance (radius) for the protection zone for GSO/ NGSO satellites?

Answer: There are a number of technical solutions and protection distance is one of them. Technical studies of GSA may please be referred to. If required we can provide more details and discuss, if required and given opportunity.

Q24. What should be the eligibility conditions for assignment of spectrum for each type of space-based communication service (as mentioned in the Table 1.3 of this Consultation Paper)? Among other things, please provide your inputs with respect to the following eligibility conditions:

- (a) Minimum Net Worth
- (b) Requirement of existing agreement with satellite operator(s)
- (c) Requirement of holding license/ authorization under Unified

License prior to taking part in the auction process. Kindly justify your response

Answer: To be evaluated from long-term national security considerations.

Q25. What should be the terms and conditions for assignment of frequency spectrum for both user links as well as gateway links for each type of space-based communication service? Among other things, please provide your detailed inputs with respect to roll-out obligations on space-based communication service providers. Kindly provide a response for both scenarios viz. exclusive assignment and nonexclusive (shared) assignment with justification.

Answer: These are competitive commercial services, particularly, meant for remote and inaccessible areas or filling the blanks and hence there is no need to put any rollout conditions. USO schemes are there to incentivize rural rollout. Nonexclusive Assignment by auction only.

Q26. Whether the provisions contained in the Chapter-VII (Spectrum Allotment and Use) of Unified License relating to restriction on crossholding of equity should also be made applicable for satellite-based service licensees? If yes, whether these provisions should be made applicable for each type of service separately? Kindly justify your response.

Answer. No comment

Q27. Keeping in view the provisions of ITU's Radio Regulations on coexistence of terrestrial services and space-based communication services for sharing of same frequency range, do you foresee any challenges in ensuring interference-free operation of space-based communication network and terrestrial networks (i.e., microwave access (MWA) and microwave backbone (MWB) point to point links) using the same frequency range in the same geographical area? What could be the measures to mitigate such challenges? Suggestions may be made with justification.

Answer: Present ITU studies (at WP 4A and WP5D) don't take into consideration parameters of state of art satellite radio technology used by satellite systems. **These studies are based on age-old satellite communications radio technologies and related protection criteria.**

Based on our lifelong experience in satellite and terrestrial communications systems, we are fully confident that, Honest and Unbiased coexistence studies (in all microwave bands), based on state-of-the-art radio communications technologies, used by both satellite and terrestrial mobile systems will bring out a lot of margins for coexistence without any problem. Further, through audit of microwave spectrum

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allocated and actually used by satellite systems will free a lot of spectrum that can be made available for R&D, IPR creation, and development of new technologies. Why India cannot take the lead and make others follow?

Q28. In what manner should the practice of assignment of a frequency range in two polarizations should be taken into account in the present exercise for assignment and valuation of spectrum? Kindly justify your response.

Answer: Please go for technical studies wrt technological developments.

Q29. What could be the likely issues, that may arise, if the following auction design models (described in para 3.127 to 3.139) are implemented for assignment of spectrum for user links in higher bands (such as C band, Ku band and Ka band)?

a. Model #1: Exclusive spectrum assignment

b. Model #2: Auction design model based on non-exclusive spectrum assignment to only a limited number of bidders

What changes should be made in the above models to mitigate any possible issues, including ways and means to ensure competitive bidding? Response on each model may kindly be made with justification.

Answer: Auction design model based on non-exclusive spectrum assignment for all possible applications

Q30. In your opinion, which of the two models mentioned in Question 29 above, should be used? Kindly justify your response.

Answer: No comment

Q31. In case it is decided to assign spectrum for user links using model # 2 i.e., non-exclusive spectrum assignment to limited bidders ($n + \Delta$), then what should be

(a) the value of Δ , in case it is decided to conduct a combined auction for all services

(b) the values of Δ , in case it is decided to conduct separate auction for each type of service

Please provide detailed justification.

Answer: No comment

Q32. Kindly suggest any other auction design model(s) for user links including the terms and conditions? Kindly provide a detailed response with justification as to how it will satisfy the requirement of fair auction i.e., market discovery of price.

Answer: No comment

Q33. What could be the likely issues, that may arise, if Option # 1: (Area specific assignment of gateway spectrum on administrative basis) is implemented for assignment of spectrum for gateway links? What changes could be made in the proposed option to mitigate any possible issues?

Answer: No issue. Use interference mitigation techniques, as and when required, based on actual observations, maybe using the regulatory mechanism, if necessary.

Q34. What could be the likely issues, that may arise, if Option # 2: Assignment of gateway spectrum through auction for identified areas/ regions/ districts is implemented for assignment of spectrum for gateway links? What changes could be made in the proposed option to mitigate any possible issues? In what manner, areas/ regions/ districts should be identified?

Answer: No issue. Use interference mitigation techniques, as and when required, based on actual observations, may be using regulatory mechanism, if necessary.

Q35. In your view, which spectrum assignment option for gateway links should be implemented? Kindly justify your response.

Answer: No comment

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Q36. Kindly suggest any other auction design model(s) for gateway links including the terms and conditions? Kindly provide a detailed response with justification as to how it will satisfy the requirement of fair auction i.e., market discovery of price?

Answer: No comment

Q37. Any other issues/suggestions relevant to the subject, may be submitted with proper explanation and justification.

Answer: Auction has to be designed, with optimum use of spectrum for all telecom services. With the condition of heavy penalties on mis information and spectrum hoarding

Q38. In case it is decided for assignment of spectrum on administrative basis, what should be the spectrum charging mechanism for assignment of spectrum for space-based communications services

i. For User Link

ii. For Gateway Link

Please support your answer with detailed justification.

Answer: It is the decision of the Government of India to auction spectrum for all commercial services.

Q39. Should the auction determined prices of spectrum bands for IMT /5G services be used as a basis for valuation of space-based communication spectrum bands

i. For user link

ii. For gateway link

Please support your answer with detailed justification.

Answer: No. Let us auction spectrum to determine the price.

Q40. If response to the above question is yes, please specify the detailed methodology to be used in this regard?

Answer: No comment

Q41. Whether the value of space-based communication spectrum bands

i. For user link

ii For gateway link

be derived by relating it to the value of other bands by using a spectral efficiency factor? If yes, with which spectrum bands should these bands be related to and what efficiency factor or formula should be used? Please support your response with detailed justification.

Answer: Let us auction spectrum to determine the price

Q42. In case of an auction, should the current method of levying spectrum fees/charges for satellite spectrum bands on formula basis/ AGR basis as followed by DoT, serve as a basis for the purpose of valuation of satellite spectrum

i. For user link

ii. For gateway link

If yes, please specify in detail what methodology may be used in this regard.

Answer: Spectrum can be used for different applications and hence it is not fare to term it as satellite spectrum bands. In technology neutral and competitive regime, for the same/ similar type of services to end users, there can not be different rules for technology-based delivery of services.

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Q43. Should revenue surplus model be used for the valuation of space-based spectrum bands

i. For user link

ii. For gateway link

Please support your answer with detailed justification.

Answer: In a technology-neutral and competitive regime, for the same/ similar type of services to end users, there cannot be different rules for technology-based delivery of services.

Q44. Whether international benchmarking by comparing the auction determined prices of countries where auctions have been concluded for space-based communication services, if any, be used for arriving at the value of space-based communication spectrum bands:

i. For user link

ii. For gateway link

If yes, what methodology should be followed in this regard? Please give country-wise details of auctions including the spectrum band /quantity put to auction, quantity bid, reserve price, auction determined price etc. Please support your response with detailed justification.

Answer: Every country has different market dynamics. So far, due to obvious reasons, Commercial Satellite systems could manage to get spectrum, practically at no cost. Now, an auction-based uniform spectrum auction mechanism is essential to be adopted for all communication services, irrespective of the technology used.

Q45. Should the international administrative spectrum charges/fees serve as a basis/technique for the purpose of valuation in the case of satellite spectrum bands

i. For user link

ii. For gateway link

Please give country-wise details of administrative price being charged for each spectrum band. Please specify in detail terms and conditions in this regard.

Answer: As responded to question 44.

Q46. If the answer to above question is yes, should the administrative spectrum charges/fees be normalized for cross country differences? If yes, please specify in detail the methodology to be used in this regard?

Q47. Apart from the approaches highlighted above which other valuation approaches can be adopted for the valuation of space-based communication spectrum bands? Please support your suggestions

with detailed methodology, related assumptions and other relevant factors.

Answer: No comment

Q48. Should the valuation arrived for spectrum for user link be used for valuation for spectrum for gateway links as well? Please justify.

Answer: No comment

Q49. If the answer to the above is no, what should be the basis for distinction as well as the methodology that may be used for arriving at the valuation of satellite spectrum for gateway links? Please provide detailed justification.

Answer: No comment

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Q50. Whether the value arrived at by using any single valuation approach for a particular spectrum band should be taken as the appropriate value of that band? If yes, please suggest which single approach/ method should be used. Please support your answer with detailed justification.

Answer: No comment

Q51. In case your response to the above question is negative, will it be appropriate to take the average valuation (simple mean) of the valuations obtained through the different approaches attempted for valuation of a particular spectrum band, or some other approach like taking weighted mean, median etc. should be followed? Please support your answer with detailed justification.

Answer: No comment

Q52. Should the reserve price for spectrum for user link and gateway link be taken as 70% of the valuation of spectrum for shared as well as for exclusive assignment? If not, then what ratio should be adopted between the reserve price for the auction and the valuation of the spectrum in different spectrum bands in case of (i) exclusive (ii) shared assignment and why? Please support your answer with detailed justification.

Answer: The reserve prices may be, the maximum present amount paid, to the Government of India, by any satellite system for using spectrum. Let there be price discovery using the market mechanism.

Q53. If it is decided to conduct separate auctions for different class of services, should reserve price for the auction of spectrum for each service class be distinct? If yes, on what parameter basis such as revenue, subscriber base etc. this distinction be made? Please support your answer with detailed justification for each class of service.

Answer: No comment

Q54. In case of auction based and/or administrative assignment of spectrum, what should the payment terms and associated conditions for the assignment of spectrum for space-based communication services relating to:

i. Upfront payment ii. Moratorium period iii. Total number of installments to recover deferred payments iv. Rate of discount in respect of deferred payment and prepayment

Please support your answer with detailed justification.

Answer: Auction all spectrum and apply the same terms and conditions for the same/similar type of commercial telecom services to the end user.

For NGN FORUM NEW DELHI

A handwritten signature in blue ink that reads 'Vikas'.

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