Consultation Paper No. 12/ 2023

भारतीय दूरसंचार विनियामक प्राधिकरण

Telecom Regulatory Authority of India

# Supplementary Consultation Paper on Data Communication Services Between Aircraft and Ground Stations Provided by Organizations Other Than Airports Authority of India

New Delhi, India

03.08.2023

Mahanagar Doorsanchar Bhawan, Jawahar Lal Nehru Marg, New Delhi- 110002

**Written Comments on the Supplementary Consultation Paper are invited from the stakeholders by 17.08.2023 and counter-comments by 24.08.2023. Comments and counter-comments will be posted on TRAI's website www.trai.gov.in. The comments and counter-comments may be sent, preferably in electronic form, to Shri Akhilesh Kumar Trivedi, Advisor (Networks, Spectrum and Licensing), TRAI on the email ID** advmn@trai.gov.in**.**

**For any clarification/information, Shri Akhilesh Kumar Trivedi, Advisor (Networks, Spectrum and Licensing), TRAI, may be contacted at Telephone No. +91-11-23210481.**

**Supplementary Consultation Paper on**
**Data Communication Services Between Aircraft and Ground Stations Provided by Organizations Other Than Airports Authority of India**

## A. DoT's Reference Dated 12.04.2022

1. Through a reference dated 12.04.2022 (**Annexure-I**), the Department of Telecommunications (DoT), Ministry of Communications, Government of India requested Telcom Regulatory Authority of India (hereinafter, referred to as "the Authority") to submit recommendations under Section 11(1)(a) of TRAI Act, 1997 (as amended) on frequency assignment for data communication services between aircraft and ground stations for services provided by organizations other than Airport Authority of India. Through the said reference, DoT stated *inter-alia,* as below:

*"During 2006-2010, this Ministry made frequency assignments to M/s Société Internationale de Telecommunications Aeronautiques, (SITA) and M/s Bird Consultancy Services (BCS) to operate VHF[1] Data Communication Link between aircrafts and ground. M/s SITA was assigned 131.725 MHz and 136.975 MHz to operate at 28 airports; and M/s BCS was assigned 131.825 MHz to operate at 04 airports (List of airports attached Annexure-1). The spectrum charges were levied as per Order issued in 1987, and Corrigendum there to issued on 06/05/2003. This order was revised in 2005 and March 2012. (copy of relevant orders are attached as Annexure-2 to 5, respectively).*

*2. During 2012, M/s BCS; and during 2014-2015 and 2021, M/s SITA; applied to this Ministry to add More stations to their network. M/s SITA applied for 15 additional locations and M/s BCS applied for 10 additional airports in the country (Annexure-6).*

[1] VHF is an acronym of Very High Frequency. VHF is the designation for the range of radio frequency electromagnetic waves (radio waves) from 30 MHz to 300 MHz.

*3. While processing the applications for additional locations, a concern was raised that the operations by both M/s SITA and M/s BCS were not captive (internal use) in nature, and there could have a commercial angle in the operation that involved a service rendered to airlines operators. A further concern was whether such services, being offered in a sensitive area as civil aviation, should be regulated under any "service license". Accordingly, a letter was written to Directorate General of Civil Aviation (DGCA) on 05.05.2014 and 04.08.2014) (see Annexure 7 and 8) requesting them to inform DOT, mentioning the sensitive nature of the communications that may be involved in these data communications, whether DGCA had given any permission / authorization to the two organizations to provide Data-based services to airlines at different airports. DGCA was also requested to clarify whether there were any regulatory framework under which such services were mandated to be provided by the two organisations to airlines. DGCA replied on 02.06 2016 (See Annexure 9) that they had not given any permission/authorization to provide data-link services to any organisation as there were no regulations for the same. However, they provided a copy of air safety circular (4 of 2014) dated 05.05.2014 issued by them, (see Annexure 10) which requires airline operators to use all suitable means to track their aircraft on real-time basis.*

*3.1 The frequency assignments for the additional locations requested by M/s SITA and M/s BCS were not made by DOT then, however, the existing licenses were not cancelled and were renewed based on request of the applicants. SITA has renewed their licensed up to 2021. However, M/s BCS has not renewed their licenses after 2014.*

*4. As per information made available to DOT by M/s BCS, both organisations use the assigned radio frequency to provide those service (data based services) to airlines operators which is not already provided by the Airport Authority of India (voice based communication mainly the Air traffic control service, i.e. 'ATC'). Further, as per clarification provided by these organisations, the air-to-ground data link is used to obtain information from aircrafts such as passenger information, aircraft engine parameters, etc. through "Aircraft Communication Addressing and Reporting system (ACAR)". operated under*

*relevant International standards (ARINC etc.). Aeronautical Radio, Incorporated (ARINC), established in 1929, is a major provider of transport communications and systems engineering solutions for eight industries viz. aviation, airports, defense, healthcare, networks, security etc.*

*5. The VHF data link services consist of the data for the tracking the aircraft for safety of flights. The data includes the position reports, weather updates, engine health messages etc. Considering that VHF Data Link Services to provide ACAR service can be beneficial to track aircrafts on a real-time basis and help investigations/ search and rescue operations in the unfortunate event of aviation disaster, TRAI is requested, under the terms of clause 11(1)(a) of TRAI Act, 1997 as amended by TRAI Amendment Act,2000 to provide recommendation on the following.*

*i. An appropriate mechanism to regulate the services provided by these organizations:*

*ii. The manner in which the frequency assignment should be made to these organizations, in light of the supreme Court judgment made in the 2G case in 2012 - to assign radio frequencies only through auction."*

2. Through a letter dated 28.09.2022, the Authority sought certain additional information/ clarifications from DoT on the subject. In response, DoT provided its reply through a letter dated 19.10.2022.

## B. TRAI's Consultation Paper Dated 10.12.2022

3. With respect to the DoT's reference dated 12.04.2022, the Authority issued a Consultation Paper on 'Data Communication Services between Aircraft and Ground Stations for services provided by organizations other than Airport Authority of India' dated 10.12.2022, (hereinafter referred to as "the Consultation Paper dated 10.12.2022") for soliciting comments of stakeholders on suitable regulatory regime for data communication services between aircraft and ground stations provided by organizations other than the Airport Authority of India. Written comments on the issues raised in the Consultation Paper were

invited from the stakeholders by 09.01.2023 and counter-comments by 06.02.2023. Upon request of a few stakeholders, the last dates for submission of comments and counter-comments were extended to 06.02.2023 and 23.02.2023 respectively.

4. In response to the Consultation Paper dated 10.12.2022, the Authority received comments from 16 stakeholders; no counter-comments were received. These comments are available on TRAI's website www.trai.gov.in. An Open House Discussion (OHD) was conducted on 10.03.2023 through video conferencing, in which various stakeholders, including service providers, national and international entities, organizations, associations, and other organizations participated and shared their views with the Authority.

5. While examining the inputs received from stakeholders on the Consultation Paper dated 10.12.2022, it was observed that specific inputs have not been received on some of the aspects related to service license for provision of data communication services between aircraft and ground stations, methodology for spectrum assignment and spectrum charging mechanism, which will be necessary for a comprehensive analysis of the matter and formulating the recommendations. Accordingly, the Authority has decided to issue this supplementary consultation paper to seek input from stakeholders on such aspects.

## C. Supplementary Issues for Consultation

6. This section discusses the supplementary issues related to (i) service license, (ii) methodology for spectrum assignment, and (iii) spectrum charging mechanism for data communication services between aircraft and ground stations provided by organizations other than Airports Authority of India.

## (1) Supplementary Issues Related to Service License

7. Through the Consultation Paper dated 10.12.2022, *inter-alia*, the issues related to (a) need for bringing data communication services between aircraft and ground stations under service licensing regime, (b) suitability of separate service license, or authorization under Unified License for the said service and (c) broad terms and conditions of the licensing framework for the said service were raised. Upon examination of the responses of stakeholders in respect of these issues, it has been observed that except for one stakeholder, no other stakeholders have provided specific inputs in respect of eligibility conditions for obtaining service license for data communication services between aircraft and ground stations.

8. In India, the Department of Telecommunications (DoT), Ministry of Communications, Government of India grants telecommunication service licenses under the provisions of Section 4 of Indian Telegraph Act, 1885. As per the extant licensing framework in the country, an entity must fulfil the prescribed eligibility criteria for the grant of a telecommunication service license. The eligibility criteria for obtaining a telecommunication service license may vary depending on the specific type of license categories.

9. For instance, the eligibility criteria for obtaining a Unified License[2] include the following conditions:

   (a) The applicant must be an Indian entity registered under the Indian Companies Act.

   (b) The applicant must meet the financial eligibility criteria of minimum paid up equity capital and net-worth detailed in the 'Guidelines for grant of Unified License'[3] issued by DoT. As per these guidelines, the financial requirements vary with authorizations under Unified License.

[2] https://dot.gov.in/sites/default/files/UL%20guidelines%20with%20M2M%20without%20INSAT%20MSS%20R%20dated%2017012022_0.pdf?download=1

[3] The Guidelines for grant of Unified License are available on DoT's web-site at URL: https://dot.gov.in/unified-licencing?page=6

(c) The total composite foreign holding is governed by Foreign Direct Investment (FDI) policy of the Government of India as announced by Department of Industrial Policy and Promotion from time to time.

10. Further, the eligibility conditions applicable for enterprises setting up Captive Non-Public Networks (CNPN)[4] are as below:

(a) An applicant must be an Indian company registered under the Companies Act, 2013.

(b) The applicant shall be the occupant of the geographical area(s)/ property(ies) (either owned or leased) on which such Captive Non-Public Network(s) will be established.

(c) For seeking direct assignment of spectrum from the Government, the net-worth of the applicant shall not be less than Rs 100 crore.

11. It may be seen that the providers of data communication services between aircraft and ground stations offer data communication services to the Air Navigation Service Provider (ANSP) and airline operators.

12. In view of the above, stakeholders are requested to provide their inputs to the following supplementary question (SQ):

**SQ1. In case it is decided to bring data communication services between aircraft and ground stations provided by organizations other than Airports Authority of India under service licensing regime, what should be the eligibility conditions for obtaining service licence for data communication services between aircraft and ground stations? Please provide a detailed response with justifications.**

[4] https://dot.gov.in/sites/default/files/CNPN%20Guidelines%2027062022.pdf

## (2) Supplementary Issues Related to Methodology for Spectrum Assignment

13. Through the reference dated 12.04.2022, DoT requested, *inter-alia*, to provide recommendations on *"[t]he manner in which the frequency assignment should be made to these organizations, in light of the supreme Court judgment made in the 2G case in 2012 - to assign radio frequencies only through auction".*

14. Through the Consultation Paper dated 10.12.20222, issues relating to methodology for assignment of spectrum in frequency range 117.975-137 MHz to the providers of data communication services between aircraft and ground stations were raised for stakeholders' consultation. The stakeholders were also requested to suggest as to whether the spectrum should be assigned administratively, or through auction, or through any other method. Upon examination of the responses of stakeholders, it has been observed that specific inputs on various aspects of assignment of spectrum, particularly with respect to the assignment of spectrum through auction, such as eligibility conditions to participate in the auction of spectrum, quantum of spectrum to be put to auction, block size, minimum bid quantity, spectrum cap, roll out obligations, period of assignment of spectrum and conditions for surrender of spectrum etc. have not been provided.

15. In case it is decided to assign spectrum to the providers of data communication services between aircraft and ground stations through the process of auction, the aspects related to (a) eligibility conditions to participate in the auction of spectrum, (b) quantum of spectrum to be put to auction, (c) block size, (d) minimum bid quantity, (e) spectrum cap, (f) roll out obligations, (g) period of assignment of spectrum, (h) conditions for surrender of spectrum etc. will have to be examined. The following section provides a brief outline of these aspects.

### (a) Eligibility Criteria to Participate in the Auction of Spectrum

16. Generally, in spectrum auctions, entities must fulfil the prescribed eligibility criteria to participate in the auction. For instance, in the Notice Inviting Applications (NIA) for auction of spectrum in 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300 MHz, and 26 GHz bands dated 15.06.2022[5] (hereinafter, also referred to as "NIA for auction of spectrum dated 15.06.2022"), the eligibility criteria to participate in the auction was prescribed as below:

(i) Any licensee that holds a UASL/ UL with authorization for Access Services for that LSA; or

(ii) Any licensee that fulfils the eligibility criteria for obtaining a Unified License with authorization for Access Services, and gives an undertaking to obtain a Unified License with authorization for Access Services; or

(iii) Any entity that gives an undertaking to obtain a Unified License with authorization for Access Services through a New Entrant Nominee as per the DoT guidelines/ license conditions can bid for spectrum in the various bands, subject to other provisions of the NIA.

### (b) Quantum of Frequency Spectrum Available for Auction

17. The term 'quantum of frequency spectrum for auction' refers to the total amount of frequency spectrum being made available for auction. The quantum of frequency spectrum is usually measured in terms of Hertz (Hz), kilohertz (kHz), megahertz (MHz) etc. and is specified location/ geographical area wise. For instance, in the NIA for auction of spectrum dated 15.06.2022, DoT had provided details of frequency band-wise, licensed service area-wise quantum of frequency spectrum which was put to auction. In most of the frequency bands, the entire quantum of frequency spectrum, which was available at that time, was put to auction.

[5] https://dot.gov.in/sites/default/files/NIA_Version_Dated_15_06_2022.pdf

## (c) Block Size, and Minimum Bid Quantity

18. In a spectrum auction, the term 'block size' refers to the amount of frequency spectrum that is made available as a single unit for bidding. The block size is usually defined in terms of bandwidth, measured in Hertz (Hz), kilohertz (KHz) or megahertz (MHz). In the NIA for auction of spectrum dated 15.06.2022, the following block sizes for bidding in various frequency bands were prescribed:

| S. No. | Frequency Band | Block Size (MHz) |
|---|---|---|
| 1 | 600 MHz | 5 MHz (paired) |
| 2 | 700 MHz | 5 MHz (paired) |
| 3 | 800 MHz | 1.25 MHz (paired) |
| 4 | 900 MHz | 0.2 MHz (paired) |
| 5 | 1800 MHz | 0.2 MHz (paired) |
| 6 | 2100 MHz | 5 MHz (paired) |
| 7 | 2300 MHz | 10 MHz (unpaired) |
| 8 | 2500 MHz | 10 MHz (unpaired) |
| 9 | 300 MHz | 10 MHz (unpaired) |
| 10 | 26 GHz | 50 MHz (unpaired) |

19. Further, the NIA for auction of spectrum dated 15.06.2022 also stipulated minimum bid quantity in terms of number of blocks. For instance, the minimum bid quantity for 600 MHz was prescribed as one (1) block. As mentioned in the above table, the block size in case of 600 MHz band was kept as 5 MHz (paired).

20. Through Annexure-6 of the reference dated 12.04.2022, DoT provided information on the new locations requested by M/s SITA and M/s BCS. As per this information, the emission requirements of aeronautical VHF radio equipment of M/s BCS and M/s SITA are as below:

| S. No. | Entity | Emission requirement |
|---|---|---|
| 1 | M/s BCS | 6 KHz |
| 2 | M/s SITA | 13 KHz |

21. At present, the frequency spectrum in 117.975-137 MHz band is being assigned to the providers of data communications services between aircraft and ground stations on an administrative basis. The charging of this spectrum is governed by the DoT's order No. P-11014/34/2009-PP (I) dated 22.03.2012 on the subject- 'Royalty Charges for assignments of frequencies to captive users (users being charged on formula basis) including all government users, involving single channel operations for Fixed/ Land/ Land Mobile Stations/ terrestrial Broadcasting' (**Annexure-II**). As per the said order dated 22.03.2012, the minimum channel bandwidth for charging purpose is 12.5 KHz.

22. It is noteworthy that as per the International Standards and Recommended Practices [Volume V (Aeronautical Radio Frequency Spectrum Utilization) of Annex-10 (Aeronautical Telecommunications) to the Convention on International Civil Aviation][6] issued by International Civil Aviation Organization (ICAO), the minimum separation between assignable frequencies in the aeronautical mobile (R) service shall be 8.33 kHz. The relevant extract of the said document is reproduced below:

*"4.1.2 Frequency separation and limits of assignable frequencies*

*Note.— In the following text the channel spacing for 8.33 kHz channel assignments is defined as 25 kHz divided by 3 which is 8.333 ... kHz.*

*4.1.2.1 The minimum separation between assignable frequencies in the aeronautical mobile (R) service shall be 8.33 kHz.*

*Note.— It is recognized that in some regions or areas, 100 kHz, 50 kHz or 25 kHz channel spacing provides an adequate number of frequencies suitably related to inter-national and national air services and that equipment designed specifically for 100 kHz, 50 kHz or 25 kHz channel spacing will remain adequate for services operating within such regions or areas. It is further recognized that assignments based on 25 kHz channel spacing as well as 8.33 kHz channel spacing may continue to co-exist within one region or area."*

[6] https://www.pilot18.com/wp-content/uploads/2017/10/Pilot18.com-ICAO-Annex-10-Volume-5-Radio-Frequency-Spectrum-Utilization.pdf

### (d) Spectrum Holding Capping Rule

23. Spectrum caps or spectrum limits are regulatory measures implemented to restrict the amount of radio frequency spectrum that an entity can acquire or hold in a particular frequency band and/ or geographical area. The purpose of spectrum caps is to promote competition, prevent spectrum concentration, and ensure efficient spectrum utilization. For instance, in the NIA for auction of spectrum dated 15.06.2022, DoT imposed the following spectrum caps:

(i) A Cap of 40% on the combined spectrum holding in the sub-1 GHz bands i.e., 600 MHz (APT 600 Option B1), 700 MHz, 800 MHz and 900 MHz bands, including existing spectrum holding of TSPs in these bands.

(ii) A Cap of 40% on the combined spectrum holding in 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz bands, including existing spectrum holding of TSPs in these bands.

(iii) A Cap of 40% on the total spectrum put to auction in 3300 MHz band

(iv) A Cap of 40% on the total spectrum put to auction in 26 GHz band

### (e) Roll-out Obligations

24. Rollout obligations or network deployment obligations refer to the conditions or obligations for a telecom service provider to deploy their network infrastructure and launch the services within a specified time in a specified geographical area. The purpose of roll-out obligations is to ensure that the operators efficiently utilize the assigned frequency spectrum and start providing telecommunication services within the stipulated time. For instance, in the NIA for auction of spectrum dated 15.06.2022, DoT stipulated roll out obligations for 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz in terms of coverage of licensed service areas. On the other hand, roll out obligations for 3300 MHz and 26 GHz bands were stipulated in terms of commercial launch of service in the licensed service areas and number of sites to be deployed in the licensed service areas.

### (f) Period of Assignment of Spectrum

25. Generally, the frequency spectrum assigned through the auction process has a specified period of validity. For instance, in the NIA for auction of spectrum dated 15.06.2022, rights to use of spectrum in various frequency bands were offered in the auction for a period of twenty (20) years from the 'Effective Date'.

### (g) Surrender of Spectrum

26. One may contend that in case entities are permitted to surrender spectrum acquired through auction prior to the expiry of validity period, it may encourage better utilization of spectrum and may result in ease of doing business. DoT issued 'Guidelines for surrender of Access spectrum by Access Service Providers' dated 15.06.2022. The salient points of these guidelines are given below:

(i) Telecom Service Providers (TSPs) would be permitted to surrender the spectrum acquired through any auction conducted henceforth after a minimum period of ten years from the date of acquisition of such spectrum.

(ii) For surrendering spectrum, a TSP would be required to apply at least 12 months prior to the proposed date of surrender.

(iii) The quantity of spectrum qualifying for surrender would be any multiple(s) of the block size specified in the relevant Notice Inviting Application(s).

(iv) In-principle approval alongwith details of outstanding spectrum dues, i.e. dues relating to acquisition of right to use spectrum, till the proposed date of surrender would be conveyed by DoT.

(v) The TSP will clear the dues so communicated within a period of three month from the date of demand raised by DoT.

(vi) Upon clearance of dues, the final approval to the surrender of spectrum, effective from proposed date of surrender, would be communicated by DoT to the TSP within 15 days.

(vii) On surrender of spectrum, no future installments with respect to the surrendered spectrum will be required to be paid after the date of surrender.

(viii) There shall be no refund of any payment made, either as full or partial upfront payment or installments or pre-payments, towards the acquisition of such spectrum.

(ix) A processing fee @Rs. 1000 per spectrum band per licensed service area would be charged from the TSPs for surrender.

27. In view of the above, stakeholders are requested to provide their inputs to the following supplementary question (SQ):

**SQ2: In case it is decided to auction the spectrum in the frequency range 117.975 - 137 MHz for Data Communication Services Between Aircraft and Ground Stations, -**

**(a) What should be the eligibility conditions for participating in auction?**

**(b) Whether the entire available spectrum in 117.975 - 137 MHz band at each airport/ ground station should be put to auction?**

**(c) What should be the block size of spectrum and minimum bid quantity in terms of number of blocks?**

**(d) What should be the spectrum cap for each airport/ ground station?**

**(e) What should be the roll-out obligations associated with the assignment of spectrum at each airport/ ground station?**

**(f) What should be the period of assignment of spectrum?**

**(g) What should be the minimum period beyond which the spectrum acquired through auction may be permitted to be surrendered?**

**(h) What should be the process and associated terms and conditions for permitting surrender of spectrum through auction?**

**Kindly provide a detailed response with justification in respect of each of the above.**

## (3) Supplementary Issues Related to Spectrum Charging Mechanism (Payment Terms for Spectrum Assignment)

28. Presently, the spectrum for Data Communication Services between Aircraft and ground Stations is being assigned on an administrative basis and spectrum charges are being paid on an annual basis. However, in case of auctioned spectrum, as in IMT/ 5G services, the following payment terms have been prescribed as per Notice Inviting Applications (NIA) dated 15.06.2022. The same has been briefly discussed in the following paras.

29. Upfront Payments: As per NIA dated 15.06.2022 for 'Auction of Spectrum in 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300 MHz, and 26 GHz Bands, provides option of part upfront payment. It states that: Where part upfront payment has been made, which can be a multiple of complete years with a minimum of two years, the buyer shall have the option of availing moratorium for the corresponding number of years for which the upfront payment has been made. An upfront payment of 50% was fixed in the case of 1800 MHz, 2100 MHz, 2300 MHz & 2500 MHz bands. in the NIA of 2021 & 2016. However, for the preceding years (viz. the years 2015, 2013 and 2012), the upfront payment rate in case of above 1 GHz spectrum bands was fixed at 33%. On the other hand, in case of sub-1 GHz bands viz. 700 MHz, 800 MHz and 900 MHz, the upfront payment rate was fixed at 25% and upfront payment criteria remained consistent in earlier NIAs also.

30. Prepayment option: As per prepayment option given in the NIA 2022: - "Pre-payment of one or more instalments will be allowed on any date, based upon the principle that the NPV of the due amount is protected at the applicable interest rate."

31. Number of instalments: As per NIA 2022, for the case of deferred payments, the balance amount shall be payable in equal annual instalments over the remaining period, payable in advance at the beginning of each year, after the

period of moratorium if any, duly protecting the Net Present Value (NPV) of the bid amount at the applicable rate of interest.

32. Rate of Discount: As per NIA 2022, a rate of discount of 7.2% was fixed in case if prepayment/ deferred payment option was used, to ensure that the net present value of payment/ bid amount is protected.

33. In view of the above, the stakeholders are requested to provide their inputs to the following questions:

**SQ3.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 Data Communication Services between Aircraft and ground Stations 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.**

**SQ4.Whether there are any other issues/ suggestions relevant to the subject? The same may be submitted with proper explanation and justification.**

34. The following section summarizes the supplementary issues for consultation.

## D. Summary of Supplementary Issues for Consultation

35. Stakeholders are requested to provide responses to the following supplementary questions with detailed justifications:

**SQ1. In case it is decided to bring data communication services between aircraft and ground stations provided by organizations other than Airports Authority of India under service licensing regime, what should be the eligibility conditions for obtaining service licence for data communication services between aircraft and ground stations? Please provide a detailed response with justifications.**

**SQ2: In case it is decided to auction the spectrum in the frequency range 117.975-137 MHz for Data Communication Services Between Aircraft and Ground Stations, -**

**(a) What should be the eligibility conditions for participating in auction?**

**(b) Whether the entire available spectrum in 117.975 - 137 MHz band at each airport/ ground station should be put to auction?**

**(c) What should be the block size of spectrum and minimum bid quantity in terms of number of blocks?**

**(d) What should be the spectrum cap for each airport/ ground station?**

**(e) What should be the roll-out obligations associated with the assignment of spectrum at each airport/ ground station?**

**(f) What should be the period of assignment of spectrum?**

**(g) What should be the minimum period beyond which the spectrum acquired through auction may be permitted to be surrendered?**

**(h) What should be the process and associated terms and conditions for permitting surrender of spectrum through auction?**

**Kindly provide a detailed response with justification in respect of each of the above.**

**SQ3. 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 Data Communication Services between Aircraft and ground Stations relating to:**

**(i) Upfront payment,**

**(ii) Moratorium period,**

**(iii) Total number of installments to recover deferred payments, and**

**(iv) Rate of discount in respect of deferred payment and prepayment?**

**Please support your answer with detailed justification.**

**SQ4. Whether there are any other issues/ suggestions relevant to the subject? The same may be submitted with proper explanation and justification.**

## Annexure-I [DoT's reference dated 12.04.2022 (without Annexures)]

Government of India
Ministry of Communications
Department of Telecommunications
WPC Wing, 20, Asoka Road,
Sanchar Bhawan, New Delhi-110 001

L-14021/01/2021-WF Dated:12/04/2022

To,

The Secretary
Telecom Regulatory Authority of India
Mahanagar Doordarshan Bhawan,
New Delhi.

Subject : Request for TRAI recommendation for frequency assignment for Data communication services between aircraft and ground stations for services provided by organisations other than Airports Authority of India.

Sir,

During 2006-2010, this Ministry made frequency assignments to M/s *Société Internationale de Télécommunications Aéronautiques*, (SITA) and M/s Bird Consultancy Services (BCS) to operate VHF Data Communication Link between aircrafts and ground. M/s SITA was assigned 131.725 MHz and 136.975 MHz to operate at 28 airports; and M/s BCS was assigned 131.825 MHz to operate at 04 airports (List of airports attached Annexure-1). The spectrum charges were levied as per Order issued in 1987, and Corrigendum there to issued on 06/05/2003. This order was revised in 2005 and March 2012. (copy of relevant orders are attached as Annexure-2 to 5, respectively).

2. During 2012, M/s BCS; and during 2014-2015 and 2021, M/s SITA; applied to this Ministry to add More stations to their network. M/s SITA applied for 15 additional locations and M/s BCS applied for 10 additional airports in the country (Annexure-6).

3. While processing the applications for additional locations, a concern was raised that the operations by both M/s SITA and M/s BCS were not captive (internal use) in nature, and there could have a commercial angle in the operation that involved

भारतीय दूरसंचार विनियामक प्राधिकरण
महानगर दूरसंचार भवन, नई दिल्ली-०२
पंजीकरण सं. 10756
13 APR 2022
ई आफिस सं.

Contd.... 2

a service rendered to airlines operators. A further concern was whether such services, being offered in a sensitive area as civil aviation, should be regulated under any "service license". Accordingly, a letter was written to Directorate General of Civil Aviation (DGCA) on 05.05.2014 and 04.08.2014) (see Annexure 7 and 8) requesting them to inform DOT, mentioning the sensitive nature of the communications that may be involved in these data communications, whether DGCA had given any permission/ authorization to the two organizations to provide Data-based services to airlines at different airports. DGCA was also requested to clarify whether there were any regulatory framework under which such services were mandated to be provided by the two organisations to airlines. DGCA replied on 02.06.2016 (See Annexure 9) that they had not given any permission/authorization to provide data-link services to any organisation as there were no regulations for the same. However, they provided a copy of air safety circular (4 of 2014) dated 05.05.2014 issued by them, (see Annexure 10)) which requires airline operators to use all suitable means to track their aircraft on real-time basis.

3.1 The frequency assignments for the additional locations requested by M/s SITA and M/s BCS were not made by DOT then, however, the existing licenses were not cancelled and were renewed based on request of the applicants. SITA has renewed their licensed up to 2021. However, M/s BCS has not renewed their licenses after 2014.

4. As per information made available to DOT by M/s BCS, both organisations use the assigned radio frequency to provide those services (data based services) to airlines operators which is not already provided by the Airport Authority of India (voice based communication mainly the Air traffic control service, i.e. 'ATC'). Further, as per clarification provided by these organisations, the air-to-ground data link is used to obtain information from aircrafts such as passenger information, aircraft engine parameters, etc. through "Aircraft Communication Addressing and Reporting system (ACAR)", operated under relevant International standards (ARINC etc.). Aeronautical Radio, Incorporated (ARINC), established in 1929, is a major provider of transport communications and systems engineering solutions for eight industries viz. avaiation, airports, defense, healthcare, networks, security etc.

5. The VHF data link services consist of the data for the tracking the aircraft for safety of flights. The data includes the position reports, weather updates, engine health messages etc. Considering that VHF Data Link Services to provide ACAR service can be beneficial to track aircrafts on a real-time basis and help investigations/ search and

Contd...3

rescue operations in the unfortunate event of aviation disaster, TRAI is requested, under the terms of clause 11(1)(a) of TRAI Act, 1997 as amended by TRAI Amendment Act,2000 to provide recommendation on the following.

i. An appropriate mechanism to regulate the services provided by these organizations ;

ii. The manner in which the frequency assignment should be made to these organizations, in light of the supreme Court judgment made in the 2G case in 2012 - to assign radio frequencies only through auction.

12.04.2022

(R K Saxena)
Wireless Advisor

Enclosure : Annexure 1 to 10

# ANNEXURE – II [DoT's letter No. P-11014/34/2009-PP (I) dated 22.03.2012]

Government of India
Ministry of Communications & IT
Department of Telecommunication
Wireless Planning & Co-ordination (WPC) Wing

Sanchar Bhavan,
20, Ashoka Road,
New Delhi-110 001

No. P-11014/34/2009-PP (I) Date: 22nd March, 2012

**ORDER**

Subject: Royalty charges for Assignments of Frequencies to 'Captive Users' (users being charged on formula basis) including all Government Users, involving **Single Channel** Operations for Fixed/ Land/ Land Mobile Stations/ terrestrial Broadcasting.

In pursuance of Power conferred by section 4 of the Indian Telegraph Act, 1885(13 of 1885) and in supersession of this Ministry's Orders No. R-11014/26/2002-LR dated 06.05.2003 and No. R-11014/4/87-LR dated 09.12.1987, the Central Government has decided the following Royalty charges for Assignments of Frequencies to 'Captive Users' (users being charged on formula basis) including all Government Users, involving **Single Channel** Operations for Fixed/ Land/ Land Mobile Stations/ Broadcasting:-

2. *Annual Royalty per Carrier (in Rs.) = M x W;* and the following rules apply:

i. The Basic Royalty (M) given below is for one carrier frequency in a Basic Link (simplex) of 2 Fixed/ Land/ Land Mobile stations (1 station for terrestrial Broadcasting).

ii. The Minimum Channel bandwidth for charging purpose is 12.5 kHz.

iii. Duplex circuits and Semi-duplex circuits shall be charged at twice the rate of simplex (single central frequency) circuits.

iv. For multi-frequency circuits, even if operating in simplex mode, the Basic Royalty shall be charged for each frequency separately.

v. For each additional station beyond the Basic Link (i.e. 2 stations), operating on the same carrier frequency, additional royalty will be charged @ 25% of that payable for the Basic Link of that frequency.

vi. For the purpose of charging Royalty, the bandwidth factor W shall be computed in terms of a Unit Channel Width of 12.5 KHz (equivalent voice channel):

$$W = \frac{\text{Actual Channel Bandwidth in kHz}}{12.5}, \quad \textbf{rounded to next higher integer.}$$

vii. For all carrier frequencies, the chargeable bandwidth shall include the Guard Bands required to be provided as per ITU.

viii. The following Table-A is applicable only for Single Channel Bandwidths up to 375 KHz, inclusive of guard-band.

***Royalty Charges for Single channel***

**Table A-for the 'M' Factor**

| Distance Cat. | "Maximum Distance (KM) Over Which the F/L/LM Network would operate" | Royalty (in Rs.) for 24-hour operation of the Basic Link (M) per Carrier | Royalty (in Rs.) for 12-hour operation of the Basic Link, adjusted for inflation. | Per Carrier Royalty for each additional station beyond the Basic Pair (Rs.) working in the same frequency |
|---|---|---|---|---|
| | | *M* | *m1* | *m2* |
| I | <= 2 | *1500* | *N/A* | *25%* |
| II | <= 5 | *3000* | *N/A* | *25%* |
| III | > 5 <= 25 | *6000* | *N/A* | *25%* |
| IV | > 25 <= 60 | *12000* | *N/A* | *25%* |
| V | > 60 <= 120 | *22500* | *N/A* | *25%* |
| VI | > 120 <= 500 | *37500* | *25000* | *25%* |
| VII | > 500 | *50000* | *33330* | *25%* |

ix. In addition to above, the explanatory "Notes" on the applicability of royalty charges, are as following:

- A *simplex* operation is a method in which transmission is made possible alternately in each direction of a communication channel, e.g. by manual control.
- A *duplex* operation is a method in which transmission is possible simultaneously in both directions of a telecommunication channel.
- A *semi-duplex* operation is a method which is simplex operation at one end of the circuit and duplex operation at the other.
- To determine the "Maximum Distance" slab applicable to a case, the 'maximum power rating/ assigned' of the transmission equipment be considered, and expressly recorded in the assignment instrument Decision Letter, Agreement-in-Principle, or Wireless Operating License (DL/ AIP/ WOL).
- The *duration* of a radio frequency assignment will normally be one or two years. If an applicant desires, and frequencies are available, the duration of assignment may be fixed as three or four or five years.
- Before issuing any DL/ AIP/ WOL, full amounts of Royalty shall be submitted by the applicant in advance for the entire duration of the DL/ AIP/ WOL.
- For all assignments of frequencies, all applicants or users shall pay the applicable Royalty, License Fee, etc. **at the rates and terms in force from time to time, all previously paid amounts being adjusted on pro-rata basis.**
- Frequencies will normally be assigned, and hence charged, on 24-hour basis, unless indicated otherwise.

x. The most highly demanded VHF/UHF bands of 146-174 MHz and 338-470 MHz the rates of Annual Royalty given above be increased by **15%** and **10%** *respectively* in the **Municipal/ state areas** of **Mumbai, Delhi, Tamil Nadu, Karnataka and Andhra Pradesh.** The enhanced charges shall become applicable to any wireless circuit whose even one station falls within these Service Areas.

3. For Charging of "Licence fee and other fees, Surcharge/ late fee and Charging Methodologies for Royalty / licence fees, Order No. No. P-11014/34/2009-PP (IV) dated 22nd March, 2012 shall be applicable

4. This issues with the concurrence of the Wireless Finance Division, vide this Dy. No.482/Sr.DDG(WPF), dated 19/3/12.

5. This Order shall come into force from 1st April 2012.

22/3/12

(Viresh Goel)
Deputy Wireless Advisor
to the Government of India

Copy to:

1. All concerned
2. Wireless Finance Division
3. Wireless Monitoring Organisation
4. Director, IT DoT for uploading on DoT website
5. DWA(ASMS) for uploading on WPC Wing website

## ANNEXURE – III [List of Acronyms]

| S. No. | Acronym | Description |
|---|---|---|
| 1 | ACAR | Aircraft Communication Addressing and Reporting System |
| 2 | ANSP | Air Navigation Service Provider |
| 3 | APT | Asia-Pacific Telecommunity |
| 4 | ATC | Air Traffic Control |
| 5 | BCS | M/s Bird Consultancy Services |
| 6 | CNPN | Captive Non-Public Network |
| 7 | DGCA | Director General of Civil Aviation |
| 8 | DoT | Department of Telecommunications |
| 9 | ICAO | International Civil Aviation Organization |
| 10 | NIA | Notice Inviting Applications |
| 11 | OHD | Open House Discussion |
| 12 | SITA | M/s Société Internationale de Telecommunications Aeronautiques |
| 13 | SQ | Supplementary Question |
| 14 | TRAI | Telecom Regulatory Authority of India |
| 15 | TSP | Telecom Service Provider |